



**FINAL
HAZARD RANKING SYSTEM EVALUATION
LCP CHEMICALS, INC.
LINDEN TOWNSHIP, UNION COUNTY, NEW JERSEY
PREPARED UNDER**

**WORK ASSIGNMENT NO. 038-2JZZ
CONTRACT NO. 68-W9-0051**

FEBRUARY 1997

VOLUME 2 OF 4

REFERENCE NO. 1

101594

Final Rule

Friday
December 14, 1990

Part II

Environmental Protection Agency

40 CFR Part 300
Hazard Ranking System; Final Rule

101595

Ref No 1, p. 671

REFERENCE NO. 2

101596

United States
Environmental Protection
Agency
Superfund

Office of Emergency and
Remedial Response
Washington, DC 20460

Publication
September 1995



Superfund Chemical Data Matrix

Ref. No. 2, p. 1 of 9

101597

TABLE OF CONTENTS

Section

Page

TABLE OF CONTENTS	iii
SECTION 1 INTRODUCTION	1
1.1 DEFINITIONS	1
SECTION 2 SUPERFUND CHEMICAL DATA MATRIX DATA SELECTION RULES	3
2.1 HAZARDOUS SUBSTANCE IDENTITIES	3
2.2 DATA SELECTION METHODOLOGY	5
2.2.1 Toxicity Information	5
2.2.2 Carcinogenicity Information	7
2.2.3 Mobility Information	9
2.2.4 Persistence Information	13
2.2.5 Bioaccumulation Potential Information	14
2.2.6 Ecotoxicity Parameters	16
2.2.7 Benchmarks	16
SECTION 3 CHEMICAL DATA, FACTOR VALUES, AND BENCHMARKS FOR HAZARDOUS SUBSTANCES	30
APPENDIX A CHEMICAL DATA, FACTOR VALUES, AND BENCHMARKS FOR CHEMICAL SUBSTANCES	A-1
APPENDIX B-1 TABLES FOR NON-RADIOACTIVE HAZARDOUS SUBSTANCES	B-1
APPENDIX B-2 TABLES FOR RADIONUCLIDES	B-77
APPENDIX C SYNONYM LIST	C-1

SECTION 1

INTRODUCTION

The Superfund Chemical Data Matrix (SCDM) is a source for factor values and benchmark values applied when evaluating potential National Priority List (NPL) sites using the Hazard Ranking System (HRS). The HRS assigns factor values for toxicity, gas migration potential, gas and ground water mobility, surface water persistence, and bioaccumulation potential based on the physical, chemical, and radiological properties of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) hazardous substances present at a site for a particular migration pathway. Hazardous substances, defined for HRS purposes, are CERCLA hazardous substances plus CERCLA pollutants and contaminants. The HRS also assigns extra weight to targets with exposure levels to hazardous substances that are at or above benchmarks. These benchmarks include both screening concentrations and concentrations specified in regulatory limits for the hazardous substances present at a site for a particular migration pathway.

SCDM contains HRS factor values and benchmark values for hazardous substances that are frequently found at sites evaluated using the HRS, as well as the physical, chemical, and radiological data used to calculate those values. The raw data in SCDM are taken directly from literature sources, from other databases, or are calculated. The HRS rules are then applied to the raw data to arrive at a factor value or benchmark value.

Section 2 of this document explains how data are selected or calculated for inclusion in SCDM. Section 3 describes how SCDM data, HRS factor values, and benchmark values are presented. The factor values and benchmark values are listed, substance by substance, in Appendix A. Appendix B-1 contains the HRS factor values and benchmark tables (organized by pathway) for nonradiological hazardous substances. Appendix B-2 contains similar tables for radionuclides and Appendix C contains a cross reference index of substance name synonyms.

1.1 DEFINITIONS

In addition to the definitions found in Section 1.1 of the HRS (55 FR 51585-51587, 14 December 1990), the following definitions are used in this document:

- Cancer Risk Screening Concentrations: Substance-specific intake concentrations that are based on estimates of a daily exposure level of a substance. They are used in the HRS as benchmarks in evaluating target populations actually exposed to carcinogenic substances (see also the definition of "Screening Concentrations" in Section 1.1 of the HRS).

- Reference Dose Screening Intake Benchmarks: Substance-specific intake concentrations that are based on estimates of a daily exposure level of a substance. They are used in the HRS as benchmarks in evaluating target population actually exposed to noncarcinogenic substances (see also the definitions of "Reference Dose" and "Screening Concentration" in Section 1.1 of the HRS).

in SCDM. SCDM only uses recommended values from the CHEMFATE Database. CHEMEST is used to estimate Log K_{ow} values if values from other sources are not available.

2.2.6 Ecotoxicity Parameters

2.2.6.1 Acute and Chronic Freshwater Criteria

SCDM uses data from the following reference for acute and chronic freshwater criteria:

U.S. Environmental Protection Agency, 1995 *Water Quality Criteria-Draft (the Silver Book)*, Office of Water. U.S. EPA: Washington, DC.

SCDM uses only values that are specifically stated as criteria. At this time, no Ambient Aquatic Life Advisory Concentrations (AALACs) have been specified.

2.2.6.2 Acute and Chronic Saltwater Criteria

SCDM uses data from the following reference for acute and chronic saltwater criteria:

U.S. Environmental Protection Agency, 1995 *Water Quality Criteria-Draft (the Silver Book)*, Office of Water. U.S. EPA: Washington, DC.

SCDM uses only values that are specifically stated as criteria. At this time, no AALACs have been specified.

2.2.6.3 LC_{50} —Freshwater, Saltwater

SCDM uses data from the following reference for freshwater and saltwater LC_{50} values:

U.S. Environmental Protection Agency, 1995, Aquatic Information Retrieval (AQUIRE) Database, Environmental Research Laboratory, Duluth, MN.

SCDM uses the lowest, acute LC_{50} value found for any aquatic organism in the specified environment with an acute exposure duration of greater than one day and less than or equal to four days. All LC_{50} values where no environment is given but which use NaCl as a control are considered as freshwater LC_{50} values. When no durations or environments are given, LC_{50} values are omitted from SCDM.

2.2.7 Benchmarks

The HRS assigns extra weight to targets with exposure levels to hazardous substances that are at or above benchmark values. This section describes the sources for certain regulatory limits that the HRS uses as health-based or ecological-based benchmarks.

2.2.7.1 National Ambient Air Quality Standards

SCDM uses data from the following reference for National Ambient Air Quality Standards (NAAQS):

40 CFR Part 50, 1994, National Ambient Air Quality Standards.

2.2.7.2 National Emissions Standards for Hazardous Air Pollutants

SCDM uses the following reference for National Emissions Standards for Hazardous Air Pollutants (NESHAPS):

40 CFR Part 61, 1994, National Emissions Standards for Hazardous Air Pollutants.

SCDM uses only values that are reported in ambient concentration units ($\mu\text{g}/\text{m}^3$).

2.2.7.3 Maximum Contaminant Levels

SCDM uses the following reference for Maximum Contaminant Levels (MCLs):

U.S. Environmental Protection Agency, 1995, *Drinking Water Regulations and Health Advisories*, Office of Water. U.S. EPA: Washington, DC.

SCDM uses only MCLs that are reported in units of concentration (mg/L or $\mu\text{g}/\text{L}$). SCDM does not contain MCLs for total trihalomethanes (bromoform, bromodichloromethane, chloroform, or dibromochloromethane), asbestos, radium isotopes, gross α -particle activity, or β -particle plus photon radioactivity.

2.2.7.4 Maximum Contaminant Level Goals

SCDM uses the following reference for Maximum Contaminant Level Goals (MCLGs):

U.S. Environmental Protection Agency, 1995, *Drinking Water Regulations and Health Advisories*, Office of Water. U.S. EPA: Washington, DC.

SCDM uses only nonzero MCLGs that are reported in units of concentration (mg/L or $\mu\text{g}/\text{L}$). For substances where multiple values are listed due to lack of consensus on appropriate carcinogen class, SCDM contains the lowest number. For substances where MCLs or MCLGs are reported but different, SCDM selects the MCLG as the lower of the two values (55 FR 51593).

Appendix B-1

Tables for Non-Radioactive Hazardous Substances

Ref. No. 2, p. 7 of 9

101603

HAZARD RANKING SYSTEM
Hazardous Substance Factor Values
377 Substances

Substance Name	CAS Number	Toxicity	Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity		Air Gas Migration	Air Gas Mobility	Gas	Part
			Liquid		Non-Liquid		River	Lake	Food Chain		Environmental		Fresh	Salt				
			Karst	Non-Karst	Karst	Non-Karst			Fresh	Salt	Fresh	Salt						
Indeno(1,2,3-cd)pyrene	000193-39-5	1000*	1.0E+00	1.0E-04	2.0E-05	2.0E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	...	...	NA	NA	No	Yes
Isoxylit	001689-83-4	1000	1.0E+00	1.0E+00*	2.0E-01	2.0E-01*	0.4000	0.0700	500.0	500.0	500.0	500.0	1000	1000	NA	NA	No	Yes
Iron	007439-89-6	1*	1.0E+00	1.0E-02*	1.0E+00*	1.0E-02*	1.0000*	1.0000*	0.5*	0.5*	0.5*	0.5*	10*	10*	NA*	NA*	No	Yes*
Isobutanol	000078-83-1	10	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0000*	0.4000*	0.5	0.5	0.5	0.5	10	1	17	1.0000	Yes	No
Isophorone	000078-59-1	10	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0000	1.0000	5.0	5.0	5.0	5.0	1	1	11	1.0000	Yes	No
Kepon	000143-50-0	10000	1.0E+00	1.0E-02*	2.0E-01	2.0E-03*	1.0000*	1.0000*	50000.0	50000.0	50000.0	50000.0	10000	10000	0	0.0020	Yes	Yes
Lead	007439-92-1	...	1.0E+00	1.0E-02	2.0E-03	2.0E-05	1.0000	1.0000	50.0	5000.0	5000.0	5000.0	1000	1000	NA	NA	No	Yes
Lindane	000058-89-9	10000	1.0E+00	1.0E+00*	2.0E-01	2.0E-01*	1.0000	1.0000	500.0	500.0	500.0	500.0	10000	10000	11	0.0200	Yes	Yes
Magnesium	007439-95-4	...	1.0E+00	1.0E+00	...	...	1.0000	1.0000	0.5	0.5	0.5	0.5	...	...	NA	NA	No	Yes
Malathion	000121-75-5	100	1.0E+00	1.0E+00*	1.0E+00	1.0E+00*	1.0000	0.4000*	50.0	50.0	50.0	50.0	10000	10000	0	0.0020	Yes	Yes
Maleic anhydride	000108-31-6	10	1.0E+00	...	2.0E-05	...	0.4000*	0.0700*	50000.0*	50000.0*	50000.0*	50000.0*	1	1	6*	1.0000	Yes	No
Maleic hydrazide	000123-33-1	1	1.0E+00	1.0E+00	1.0E+00	1.0E+00	0.4000	1.0000	0.5	0.5	0.5	0.5	10	10	17	1.0000	Yes	No
Manganese	007439-96-5	10000	1.0E+00	1.0E-02	1.0E+00	1.0E-02	1.0000	1.0000	0.5	0.5	50000.0	50000.0	...	...	NA	NA	No	Yes
Mercury	007439-97-6	10000	1.0E+00	1.0E-02*	2.0E-05	2.0E-07*	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	6*	0.2000	Yes	Yes
Methacrylonitrile	000126-98-7	10000	1.0E+00	1.0E+00	1.0E+00	1.0E+00	0.4000	1.0000	0.5	0.5	0.5	0.5	...	...	17	1.0000	Yes	No
Methanol	000067-56-1	1	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0000	0.4000	0.5	0.5	0.5	0.5	10*	1	11	1.0000	Yes	No
Methoxyl	016752-77-5	100	1.0E+00	1.0E+00	1.0E+00	1.0E+00	0.4000	1.0000	0.5	0.5	0.5	0.5	10000	10000	17	1.0000	Yes	No
Methoxychlor	000072-43-5	100	1.0E+00	1.0E-02*	2.0E-03	2.0E-05*	1.0000	1.0000	50000.0	5000.0	50000.0	5000.0	10000	10000	6	0.0020	Yes	Yes
Methyl chlorocarbonate	000079-22-1	100	1.0E+00	...	2.0E-05	...	0.4000	0.0700	50000.0*	50000.0*	50000.0*	50000.0*	...	...	11*	1.0000	Yes	No
Methyl ethyl ketone	000078-93-5	10	1.0E+00	1.0E+00	1.0E+00	1.0E+00	0.4000	0.4000	0.5	0.5	0.5	0.5	1	1	17	1.0000	Yes	No

* Indicates difference between previous version of chemical data (JUN94) and current version of chemical data.

Ref. No. 2,
p. 8069

HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks
377 Substances

Substance Name	CAS Number	MCL/MCLG mg/L	DRINKING WATER			FOOD CHAIN		ENVIRONMENTAL	
			Reference Dose Screen Conc mg/L	Cancer Risk Screen Conc mg/L	FDAAL ppm	Reference Dose Screen Conc mg/kg	Cancer Risk Screen Conc mg/kg	Freshwater ug/L	AWQC/AALAC Saltwater ug/L
Indeno(1,2,3-cd)pyrene	000193-39-5	...	...	1.2E-04*	...	...	4.3E-03*	...	...
Ioxynil	001689-83-4	...	...	...	...	...	...	...	...
Iron	007439-89-6	...	...	...	...	...	...	1.0E+03*	1.0E+03*
Isobutanol	000078-83-1	...	1.1E+01*	...	...	4.1E+02*	...	...	...
Isophorone	000078-59-1	...	7.3E+00*	9.0E-02*	...	2.7E+02*	3.3E+00*	...	...
Kepone	000143-50-0	...	...	...	3.0E-01	...	...	...	...
Lead	007439-92-1	1.5E-02	...	...	...	...	...	3.2E+00	3.2E+00*
Lindane	000058-89-9	2.0E-04	1.1E-02*	6.6E-05*	...	4.1E-01*	2.4E-03*	8.0E-02	8.0E-02
Magnesium	007439-95-4	...	...	...	...	...	...	...	...
Malathion	000121-75-5	...	7.3E-01*	...	...	2.7E+01*	...	1.0E-01	1.0E-01
Maleic anhydride	000108-31-6	...	3.7E+00*	...	...	1.4E+02*	...	...	...
Maleic hydrazide	000123-33-1	...	1.8E+01*	...	...	6.8E+02*	...	...	...
Manganese	007439-96-5	...	1.8E-01*	...	...	6.8E+00*	...	...	...
Mercury	007439-97-6	2.0E-03	1.1E-02*	...	1.0E+00	4.1E-01*	...	1.2E-02	1.2E-02*
Methacrylonitrile	000126-98-7	...	3.7E-03*	...	...	1.4E-01*	...	...	...
Methanol	000067-56-1	...	1.8E+01*	...	...	6.8E+02*	...	...	...
Methomyl	016752-77-5	...	9.1E-01*	...	...	3.4E+01*	...	...	...
Methoxychlor	000072-43-5	4.0E-02	1.8E-01*	...	...	6.8E+00*	...	3.0E-02	3.0E-02
Methyl chlorocarbonate	000079-22-1	...	...	...	...	...	...	...	...
Methyl ethyl ketone	000078-93-3	...	2.2E+01*	...	...	8.1E+02*	...	...	...

Ref. No. 2, p. 90f9

101605

REFERENCE NO. 3

101606

RUN DATE: 01/18/96 15:14:43
CERCLIS DATA BASE DATE: 12/07/95
CERCLIS DATA BASE TIME: 20:30:47
VERSION 6.00

** PROD VERSION **
U.S. EPA SUPERFUND PROGRAM
** CERCLIS **
LIST-8E: SITE/EVENT LISTING

PAGE: 92
CERHELP DATA BASE DATE: N/A
CERHELP DATA BASE TIME: N/A

SELECTION:

SEQUENCE: REGION, STATE, SITE NAME

EVENTS: ALL

EPA ID NO.	SITE NAME STREET CITY COUNTY CODE AND NAME (ASSOCIATED NPL SITE) (ASSOCIATED NPL ID)	STATE ZIP CONG DIST.	OPRBLE UNIT	EVENT TYPE	EVENT QUAL	ACTUAL START DATE	ACTUAL COMPL DATE	EVENT LEAD
NJD048044325 (CONTINUED)	LANDFILL & DEVELOPMENT CO		(00)	SI1		09/01/83	10/01/83	EPA (FUND)
			01	CO1		10/03/86		STATE ONLY
NJD980505382	LANG PROPERTY WHITESBOG-PASADENA RD PEMBERTON TWP 005 BURLINGTON	NJ 08015	00	RS1 RS2 DS1 PA1 HR1 NP1 NF1 SI1 SI2		03/27/90 12/09/92	08/31/90 12/10/92	EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND)
			01	CR1 AR1 WP1 CO1 RO1 RD1 RD2 RA1 RA2 MA1 DA1 AS1		11/01/79 11/01/79 06/17/86 08/30/93 09/26/84 09/26/84 03/20/87 11/20/87 07/05/88 09/30/92 09/30/92 03/18/87	08/01/82 08/01/82 FED ENFORCE EPA (FUND) FED ENFORCE FED ENFORCE EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND)	
NJD981490279	LANGSTON DIV-MOLINS MACHINE CO. 2001 SOUTH SIXTH STREET CAMDEN 007 CAMDEN	NJ 08104	00	DS1 PA1 SI1		06/27/86 01/01/90	06/27/86 06/30/86 03/30/90	STATE (FUND) STATE (FUND) STATE (FUND)
NJD001382373	LAPLACE CHEMICAL COMPANY LELIARTS LANE ELMWOOD PARK 003 BERGEN	NJ 07407	00	DS1 PA1 SI1 SP1		06/23/88	11/30/82 05/31/85 06/30/88 09/30/94	STATE (FUND) STATE (FUND) STATE (FUND) STATE (FUND)
NJD079303020	LCP CHEMICALS INC FOOT OF S WOOD AVE LINDEN 039 UNION	NJ 07036	00	RS1 DS1 PA1 SI1 SP1		08/17/94 05/01/85	09/09/94 06/01/81 06/01/84 05/31/85 07/25/95	EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND) EPA (FUND)

Ref. No. 3, p. 1 of 1

101607

REFERENCE NO. 4

101608

QUALITY ASSURED
EPA-MMB FINAL
CONTRACT LABORATORY DATA

SITE NAME: LCP CHEMICAL

CASE NO./SAS NO.: 23123

TYPE OF ANALYSIS (circle one):

VOA only

Full TCL

Full TAL ITPA

Full TAL and ~~CN~~

SAS/Other _____

From: VALERIE SMITH - CNJ

Sent to: DAVID KAHLENBERG - CNJ

Date Sent: 3/27/95

SITE NAME: LCP CHEMICAL
 PROJECT#: 8003-431
 SAMPLING DATE: 1/11/95
 EPA CASE NO.: 23123
 LAB NAME: IT ANALYTICAL

INORGANICS

Sample ID No.
 Traffic Report No.
 Matrix
 Units
 Percent Solids

	SW1 MBKW54 WATER ug/L ---	SW2 MBKW55 WATER ug/L ---	SW3 MBKW56 WATER ug/L ---	SW4 MBKW57 WATER ug/L ---	SW5 MBKW58 WATER ug/L ---	SW6 MBKW59 WATER ug/L ---	SW7 MBKW60 WATER ug/L ---	SW8 MBKW61 WATER ug/L ---	SW9 MBKW62 WATER ug/L ---	SW10 MBKW63 WATER ug/L ---
Aluminum	922	230	3170	19.6 J	446	4480 E	23600 E	54.2 J	96.3 J	866
Antimony										
Arsenic	48.7	97.4	54.9	73.5	127	126 E	336 E	65.1	62.9	23.8
Barium	1040	212	1770	12.5 J	800	9580	6800	113 J	180 J	319
Beryllium						0.28 J	1.3 J			
Cadmium			6.6		3 J	4.3 J	33 E			
Calcium	37800	18900	100000	535000	217000	90400	133000	64400	85800	148000
Chromium	4.5 J	31.7	25		10 J	46.8 E	231 E			4.3 J
Cobalt			4.3 J	3.9 J	1.9 J	10.3 J	22.9 J			
Copper	39.6	38.6	106		29.4	103 E	520 E	4.2 J	5.6 J	27.1
Iron	3430	1710	7760	20000	6990	12200 E	53800 E	2150	2400	2060
Lead	92.8	9.1	78.1		27.5	104 E	446 E	1.3 J	2 J	14
Magnesium	25100	19900	193000	91700	142000	182000	255000	123000	183000	394000
Manganese	76.5	20.7	191	806	526	610	950	565	516	206
Mercury	1.2	30.5	93		44.6	65.3	60.2	1	2	3.7
Nickel		10.6 J	8.2 J			12 J	60.6 E			
Potassium	22200	41100	122000	75800	77500	68800	94800	52700	67800	144000
Selenium							4.9 J			
Silver							8.3 J			
Sodium	465000	895000	2060000	1920000	2120000	1620000	2160000	1100000	1590000	3640000
Thallium										
Vanadium	10.5 J	65.3	15.2 J	2.9 J	14.2 J	14.5 J	83.9 E	2.5 J	3.8 J	5.1 J
Zinc	136 E	52.9 E	329 E	137 E	303 E	316 E	1440 E	33.7 E	47.6 E	74.4 E

NOTES:

Blank Space - compound analyzed for but not detected

E - estimated value

J - estimated value, compound present
 below CRDL but above IDL

R - analysis did not pass EPA QA/QC

NR - analysis not required

101610

1/20/99

SITE NAME: LCP CHEMICAL
 PROJECT#: 8003-431
 SAMPLING DATE: 1/11/95
 EPA CASE NO.: 23123
 LAB NAME: IT ANALYTICAL

INORGANICS

Sample ID No.
 Traffic Report No.
 Matrix
 Units
 Percent Solids

	SED1 MBKW64 SEDIMENT mg/kg 47.2	SED3 MBKW66 SEDIMENT mg/kg 24.9	SED4 MBKW67 SEDIMENT mg/kg 45	SED5 MBKW68 SEDIMENT mg/kg 51.3	SED6 MBKW69 SEDIMENT mg/kg 31.3	SED7 MBKW70 SEDIMENT mg/kg 33.4	SED9 MBKW72 SEDIMENT mg/kg 30.5	SED10 MBKW73 SEDIMENT mg/kg 26.4
Aluminum	5490 E	9340 E	2330 E	6540	10900 E	9310 E	11600 E	13300 E
Antimony	7 J							
Arsenic	103 E	115 E	318 E	80.3	166 E	147 E	90 E	75.4 E
Barium	4890 E	5190 E	4710 E	18600	36300 E	30600 E	12000 E	2140 E
Beryllium	0.47 J	0.74 J	0.23 J	0.54 J	0.66 J	0.63 J	0.86 J	1.2 J
Cadmium	24.2 E	16.5 E	3.2 E	132	6.1 E	6.6 E	7.6 E	4.5 E
Calcium	3880 E	7100 E	7970 E	5040	6270 E	5830 E	4020 E	3950 E
Chromium	263 E	100 E	19.6 E	59.5	150 E	145 E	144 E	136 E
Cobalt	13.1 J	16.2 J	12 J	22.4 E	32.8 E	28.4 J	18.6 J	14 J
Copper	143 E	383 E	65.6 E	201	279 E	264 E	389 E	327 E
Iron	20800 E	36800 E	57300 E	25300	26000 E	22700 E	23100 E	25300 E
Lead	617 E	358 E	82.3 E	182 E	266 E	258 E	268 E	312 E
Magnesium	1920 J	7190 E	1780 J	3210	7930 E	7190 E	5780 E	6280 E
Manganese	233 E	319 E	325 E	241	197 E	198 E	177 E	209 E
Mercury	8.8 E	1060 E	429 E	187	350 E	470 E	433 E	56.9 E
Nickel	24.5 E	52.7 E	12.9 J	20.3 E	47 E	41.3 E	52.9 E	47.9 E
Potassium	576 J	2470 J	490 J	1080 J	2690 J	2630 J	2430 J	2960 J
Selenium	3.8 E	5.6 E	2.6 E	2 E	7 E	6.6 E	10.2 E	7.6 E
Silver	3.3 J	3.5 J		2.3 J	3.8 J	4 J	4.9 J	3.7 J
Sodium	948 J	7320 E	3430 E	73240	12800 E	11800 E	12900 E	16200 E
Thallium								
Vanadium	43 E	64.9 E	22 J	26.6	50.4 E	45.2 E	43.5 E	49.5 E
Zinc	12500 E	1030 E	777 E	9040	490 E	448 E	526 E	502 E

NOTES:

Blank Space - compound analyzed for but not detected

E - estimated value

J - estimated value, compound present
 below CRDL but above IDL

R - analysis did not pass EPA QA/QC

NR - analysis not required

101611

101611
 4.16.2019

SITE NAME: LCP CHEMICAL
 PROJECT#: 8003-431
 SAMPLING DATE: 1/11/95
 EPA CASE NO.: 23123
 LAB NAME: IT ANALYTICAL

INORGANICS

Sample ID No.
 Traffic Report No.
 Matrix
 Units
 Percent Solids

	SL1 MBKW74 SOIL mg/kg 83.6	SL2 MBKW78 SOIL mg/kg 85.5	SL3 MBKW79 SOIL mg/kg 83.7	RIN1 MBKW75 WATER ug/L --	RIN2 MBKW76 WATER ug/L --
Aluminum	6700	4150	1520	52.6 J	46.7 J
Antimony		5.4 J			
Arsenic	8.5	17	1.4 J		
Barium	1300	816	2110	0.85 J	1 J
Beryllium	0.25 J	0.57 J	0.48 J		
Cadmium	0.44 J				
Calcium	6080	2210	780 J	559 J	588 J
Chromium	19.1	13.1	5.2 E		
Cobalt	11.2 J	17.9 E	3.4 J		
Copper	78	156	31.2	4.1 J	3.3 J
Iron	16500	12100	4810	28.6 J	24.4 J
Lead	63.1 E	304 E	18 E		
Magnesium	6310	2760	1030 J	41.7 J	18.6 J
Manganese	221	145	54.7		
Mercury	26.5	110	98.9		
Nickel	20.8 E	19.2 E	5.5 J		
Potassium	237 J	495 J			
Selenium	0.89 J	0.66 J	0.77 J		
Silver	37				
Sodium	372 J	624 J	147 J	1180 J	1010 J
Thallium					
Vanadium	42.3	19.7	9.6 J		
Zinc	196	833	148	3.8 J	9.3 J

NOTES:

Blank Space - compound analyzed for but not detected

E - estimated value

J - estimated value, compound present

below CRDL but above IDL

R - analysis did not pass EPA QA/QC

NR - analysis not required

101612

40669

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: 2/9/95
 SUBJECT: CLP Data Package for Quality Assurance Review
 FROM: RSCC / ESAT
 TO: George Karras, Toxic and Hazardous Waste Section

RECEIVED
 MAR 10 1995

Attached is the following INORGANIC Data Package to be reviewed for Quality Assurance

SITE <u>LCP Chemical</u>	CASE# <u>23123</u>
CONTRACTOR <u>APER</u>	#SAMPLES <u>12</u> MATRIX <u>Water</u>
PHASE <u>SX</u>	<u>11</u> <u>Soil</u>
LAB <u>ITPA</u>	FRACTION <u>YAI Metals</u>

REGION II RSCC DATA TRANSFER LOG

Relinquished By

Received By

Signature

Date/Time

Signature

Date/Time

J. Trotter 2/9/95
John Bulich 2/9/95
C. Stancu 2/23/95
DCR JB 3/9/95
Hani Shirkh 3/10

J. Trotter 2/7/95
John Bulich 2/9/95
C. Stancu 2/13/95
DCR (JBulich) 2/23/95
Hani Shirkh 3/9/95
DCR 3/10/95 2:55

101613

(over for instructions) revsd 12/94

Ref 4, p. 506

STANDARD OPERATING PROCEDURE

Page 27 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

<u>Case#</u> 23123	<u>Site</u> LCP Chemical	<u>Matrix:</u> Soil 11
<u>SDG#</u> MBKW54 & 64	<u>Lab</u> ITPA	<u>Water</u> 12
<u>Contractor</u> APER	<u>Reviewer</u> C. STANCA	<u>Other</u>

A.2.1. Validation flags-

The following flags have been applied in red by the data validator and must be considered by the data user.

J- This flag indicates the result qualified as estimated.

Red-Line- A red-line drawn through a sample result indicates unusable value. The red-lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data - The results that do not carry "J" or "red-line" are fully usable.

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0

A.2.2. The data assessment is given below and on the attached sheets.

This case consists of 12 water and 11 soil samples collected at the LCP Chemical site on 1/11/95 for metals analysis. Samples MBKW75 and 76 were identified as field blanks. Samples MBKW60 and MBKW70 were identified as field duplicates of samples MBKW59 and MBKW69 respectively. Matrix spike and laboratory duplicate analyses were performed on samples MBKW58 (aqueous) and MBKW68 (soil). Serial dilution analyses were performed on MBKW54 (aqueous) and MBKW64 (soil).

SDG# MBKW54 (AQUEOUS)

CRDL

The CRDL standard recoveries were outside the control limits of 80 - 120% for Pb (%R₁ = 132.0; %R₂ = 121.5) and Tl (%R₂ = 74.6).

101614

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

A.2.2. (continuation)

All associated sample results within the affected range have been qualified as estimated.

"J": Pb ---> MBKW61, 62.
Tl ---> MBKW54, 55, 56, 57, 58.

MATRIX SPIKE

The matrix spike recovery was outside the control limits of 75 - 125% for Ag (%R = 74.3). All associated sample results have been qualified as estimated.

"J": MBKW54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 75, 76.

ICP SERIAL DILUTION

ICP serial dilution analysis yielded a percent difference greater than 10 but less than 100 for Zn (%D = 11.5). All associated sample results greater than CRDL have been qualified as estimated.

"J": Zn ---> MBKW54, 55, 56, 57, 58, 59, 60, 61, 62, 63.

FIELD DUPLICATE

The RPD between sample (MBKW59) and field duplicate (MBKW60) result was greater than 50% for Al, As, Fe, Pb, V, and Zn, where both sample and duplicate results were greater than 5 X CRDL. Also, the difference between the results of the above mentioned sample and duplicate pair was greater than CRDL for Cd, Cr, Cu, and Ni where sample and/or duplicate results were less than 5 X CRDL. All associated sample results not previously qualified have been qualified as estimated.

"J": Al, As, Cd, Cr, Cu, Fe, Pb, Ni, V ---> MBKW59, 60.

Note: Zn results in both sample and duplicate have been previously qualified due to ICP serial dilution criteria.

SDG# MBKW64 (SOIL)

CRDL

The CRDL standard recoveries were outside the control limits of 80 - 120% for Se (%R₁ = 128.2; %R₂ = 136.3; %R₃ = 123.0) and Cr

STANDARD OPERATING PROCEDURE

Page 29 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

A.2.2. (continuation)

(%R_i = 77.2). All associated sample results within the affected ran have been qualified as estimated.

"J": Se ---> MBKW64, 66, 67, 68, 69, 70, 72, 73, 74, 78, 79.
Cr ---> MBKW79.

MATRIX SPIKE

The matrix spike recoveries were outside the control limits of 75 - 125% for Sb (%R = 66.1) and Pb (%R = 125.9). All associated sample results have been qualified as estimated.

"J": Sb, Pb ---> MBKW64, 66, 67, 68, 69, 70, 72, 73, 74, 78, 79.

ICP SERIAL DILUTION

The ICP serial dilution analysis yielded a percent difference great than 10 but less than 100 for Co (%D = 15.9) and Ni (%D = 38.0). A associated sample results greater than CRDL have been qualified as estimated.

"J": Co ---> MBKW68, 69, 78.
Ni ---> MBKW64, 66, 68, 69, 70, 72, 73, 74, 78.

PERCENT SOLIDS

The percent solids for samples MBKW64, 66, 67, 69, 70, 72, and 73 where less than 50 but more than 10. All analytes in the above mentioned samples not previously qualified have been qualified as estimated.

"J": All analytes (except Sb, Pb, Ni, Se) ---> MBKW64, 66, 70, 72,
All analytes (except Sb, Pb, Se) ---> MBKW67.
All analytes (except Sb, Co, Pb, Ni, Se) ---> MBKW69.

Ref: 80F69

101616

STANDARD OPERATING PROCEDURE

Page 30 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.2: Data Assessment Narrative

Date: Jan. 1992
Number: HW-2
Revision: 11

HS
3/10/95

A.2.3. Contract-Problems/Non-Compliance

MMB Reviewer: _____ Date: _____

Signature

Contractor Reviewer: _____ Date: 2-22-95

Signature

Verified by: _____ Date: _____

Signature

Ref to 90F69

101617

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.5: CLP Data Assessment
Summary Form (Inorganics)

Page ³³ 40 of ³⁴ 41
Date: June 93
Number: HW-2
Revision: 12

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Type of Review: Inorganic Date: 2-17-95 Case # 23123
Site: LCP Chemical Lab Name: ITPA
Reviewer's Initials: CS Number of Samples: 126 115
Analytes Rejected Due to Exceeding Review Criteria: *

	Blanking Times	Calibration	Prep Blank	Field Blank	Interference	Spike Recovery	Dup. Lab	Dup. Field	Detection Limits	LCS	Serial Dilution	MM	Total Analytes	Rejection
ICP														
Flame Aa														
Flame Ab														
Survey														
Total														
Other														

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For: *

% Solids

	Blanking Times	Calibration	Prep Blank	Field Blank	Interference	Spike Recovery	Dup. Lab	Dup. Field	Detection Limits	LCS	Serial Dilution	MM	Total Analytes	Rejection
ICP		CRDL				34		18			22	126	506	21
Flame Aa														
Flame Ab														
Survey												7	23	7
Total		19				34		18			22	133	529	22
Other														

Note: Asterisk (*) indicates additional exceedances of review criteria.

Ref No. 100f69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.6: CLP Data Assessment Checklist

Date: Jan. 1992
Number: HW-2
Revision: 11

Inorganic Analysis

INORGANIC REGIONAL DATA ASSESSMENT

Region 2CASE NO. 23123SITE LCP ChemicalLABORATORY ITAS PITTSBURGHNO. OF SAMPLES/
MATRIX 126, 115SDG# MBKN54 8-64

REVIEWER (IF NOT ESD) _____

SOW# 12MC30REVIEWER'S NAME C. Stance

DPO: ACTION _____ FYI _____

COMPLETION DATE _____

DATA ASSESSMENT SUMMARY

	ICP	AA	Hg	CYANIDE
1. HOLDING TIMES	C		C	
2. CALIBRATIONS	C		C	
3. BLANKS	C		C	
4. ICS	C			
5. LCS	C			
6. DUPLICATE ANALYSIS	C		C	
7. MATRIX SPIKE	C		C	
8. MSA				
9. SERIAL DILUTION	C			
10. SAMPLE VERIFICATION	C		C	
11. OTHER QC	C		C	
12. OVERALL ASSESSMENT	C		C	

O = Data has no problems/or qualified due to minor problems.

M = Data qualified due to major problems.

Z = Data unacceptable.

X = Problems, but do not affect data.

ACTION ITEMS: _____

AREAS OF CONCERN: _____

NOTABLE PERFORMANCE: _____

Rep 154/11 of 69

101619

U.S. EPA - CLP

6
FIELD DUPLICATES

EPA SAMPLE NO.

MBKW69/70

Lab Name: ITA & PITTSBURGH

Contract: GPD3004P

Lab Code: ITPA

Case No.: 23123

SAS No.:

SDG No.: MBKW64

Matrix (soil/water): soil

Level (low/med): LOW

% Solids Sample: 31.3

% Solids Duplicate: 33.4

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	Action Limit	Sample (S) MBKW69 Concentration	C	Field Duplicate (D) MBKW70 Concentration	C	RPD	DIFF	Q	M
Aluminum	1007	17058.0000		15547.7000		9.7			P
Antimony		11.1115	U	11.0220	U				P
Arsenic	1007	259.7900		245.4900		5.7			P
Barium	1007	56809.5000		51102.0000		10.6			P
Beryllium	10	1.0329	B	1.0521	B		0.02		P
Cadmium	10	9.5465		11.0220			1.5		P
Calcium	10,000	9812.5500		9736.1000			76.5		P
Chromium	1007	234.7500		242.1500		3.1			P
Cobalt	100	51.3320		47.4280	B		3.9		P
Copper	1007	436.6350		440.8800		1.0			P
Iron	1007	40690.0000		37909.0000		7.1			P
Lead	1007	416.2900		430.8600		3.4			P
Magnesium	10,000	12410.4500		12007.3000			403.2		P
Manganese	1007	308.3050		330.6600		7.0			P
Mercury	1007	365.8970		313.9600		15.3			CV
Nickel	80	73.5550		68.9710			4.6		P
Potassium	10,000	4209.8500	B	4392.1000	B		182.3		P
Selenium	20	10.9550		11.0220			0.07		P
Silver	20	5.9470	B	6.6800	B		0.7		P
Sodium	10,000	20032.0000		19706.0000			326.0		P
Thallium		4.2255	U	4.1750	U				P
Vanadium	100	78.8760		75.4840			3.4		P
Zinc	1007	766.8500		748.1600		2.5			P
Cyanide									NR

FORM VI - IN

Ref No 4, p. 12 of 69

101620

U.S. EPA - CLP
6
FIELD DUPLICATES

EPA SAMPLE NO.
MBKW59/60

Lab Name: ITAS PITTSBURGH

Contract: 68D3 0048

Lab Code: ITPA

Case No.: 23123

SAS No.: _____

SDG No.: MBKW54

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids Sample: _____

% Solids Duplicates: _____

Concentration Units (ug/L or mg/kg dry weight): ug/L

Analyte	Action Limit	Sample (S) MBKW59 Concentration	C	Field Duplicate (D) MBKW60 Concentration	C	RPD	DIFF	Q	M
Aluminum	50Y.	4480.0000		23600.0000		(13.2)			P
Antimony		11.2000 U		11.2000 U					P
Arsenic	50Y.	126.0000		336.0000		(90.9)			P
Barium	50Y.	9580.0000		6800.0000		33.9			P
Beryllium	5	0.2800 B		1.3000 B			1.0		P
Cadmium	5	4.3000 B		33.0000			(28.7)		P
Calcium	50Y.	90400.0000		133000.0000		38.1			P
Chromium	10	468000		231.0000			(84.2)		P
Cobalt	50	10.3000 B		22.9000 B			12.6		P
Copper	25	103.0000		520.0000			(417.0)		P
Iron	50Y.	12200.0000		53800.0000		(126.1)			P
Lead	50Y.	104.0000		446.0000		(124.4)			P
Magnesium	50Y.	182000.0000		255000.0000		33.4			P
Manganese	50Y.	610.0000		950.0000		43.6			P
Mercury	50Y.	65.0000		60.2000		8.1			CV
Nickel	40	12.0000 B		60.6000			(48.6)		P
Potassium	50Y.	68800.0000		94800.0000		31.8			P
Selenium	5	2.6000 U		4.9000 B			2.3		P
Silver	10	2.0000 U		8.3000 B			6.3		P
Sodium	50Y.	162000.0000		216000.0000		28.6			P
Thallium		4.2000 U		4.2000 U					P
Vanadium	50	14.5000 B		83.9000		(141.0)			P
Zinc	50Y.	316.0000		1440.0000		(128.0)			P
Cyanide									NR

FORM VI - IN

Ref No 4, p. 130 of 69

101621

Evaluation of Metals Data for the Contract Laboratory Program (CLP)
based on

BCR. 3/90

(BCR Revision XI)

PREPARED BY:

Harif Sheikh

Harif Sheikh, Quality Assurance Chemist
Toxic and Hazardous Waste Section

DATE:

1-30-92

APPROVED BY:

Kevin W. Kulik

Kevin Kulik, Chief
Toxic and Hazardous Waste Section

DATE:

1-30-92

APPROVED BY:

Robert Runyon

Robert Runyon, Chief
Monitoring Management Branch

DATE:

1/30/92

RY 14069

STANDARD OPERATING PROCEDURE

Page 1 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 3/90.

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned to the Data Review Coordinator:

2.1. For a total review:

2.1.1 Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1).
The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2)
The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's. Do not use pencil to write the narrative.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3)
This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Validation Task Monitor, or Technical Project Officer (TPO). Forward 5 copies: one each for internal files, appropriate Regional TPO, Sample Management Office (SMO) and last two addresses Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to the end of the Data Assessment Narrative (Sec. A.2.2).

2.1.4 CLP Data Assessment Summary Forms

2.1.4.1 Appendix A.5

Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.4.2 Appendix A.6

Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

Ref No 4, p. 15 of 64

Title: Evaluation of Metals Data for the
Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

2.1.5 Data Review Log: It is recommended that each data reviewer should maintain a log of the reviews completed to include: a. date of start of case review

- b. date of completion of case review
- c. site
- d. case number
- e. contract laboratory
- f. number of samples
- g. matrix
- h. hours worked
- i. reviewer's initials

2.1.6 Telephone Record Log - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMD. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.7 Forwarded Paperwork

2.1.7.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSOC) located in the Surveillance and Monitoring Branch:

- a. data package
- b. completed data assessment checklist (Appendix A.1, original)
- c. SMD Contract Compliance Screening (CCS)
- d. Record of Communication (copy)
- e. CLP Reanalysis Request/Approval Record (original + 3 copies)
- f. Appendix A.6 (original).

2.1.7.2 Forward 2 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.6) and Telephone Record Log, if any, one each for appropriate Regional TFO, and the other one to EPA EMSL office in Las Vegas. The addresses of TFOs and EPA office in Las Vegas are given in Appendix A-4.

2.1.8 Filed Paperwork - Upon completion of review, the following are to be filed within MMB files:

- a. Two copies of completed Data Assessment Narrative (Appendix A.2) each carrying Appendix A.6.
- b. Telephone Record Log (copy)
- c. SMD Report (copy Appendix A-3)
- d. CLP Reanalysis Request/Approval Record (copy).

Ref No. 160f69

Title: Evaluation of Metals Data for the
Contract Laboratory Program

Date: Jan. 1992
Number: HW-2
Revision: 11

3.0 Data Completeness

Each data package is checked by a Regional Sample Control Coordinator (RSSC) for completeness. A data package is assumed to be complete when all the deliverables required under the contract are present. If a data package is incomplete, the RSSC would call the laboratory for missing document(s). If the laboratory does not respond within a week, SMD and MMB coordinator of Region II will be notified.

4.0 Rejection of Data - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as a review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.

5.0 Acceptance Criteria - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 (pages 4-25) should be used. Additional guidance can be found in the National Inorganic Functional Guidelines October 1, 1989.

6.0 SMD Contract Compliance Screening (CCS) - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.

7.0 Request for Reanalysis - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage times have not been exceeded, TPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".

8.0 Record of Communication - Provided by the Regional Sample Control Center (RSSC) indicate which data packages have been received and are ready to be reviewed.

9.0 Rounding off numbers - The data reviewer will follow the standard practice.

170f69

STANDARD OPERATING PROCEDURE

Page 4 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

	YES	NO	N/A
A.1.1 <u>Contract Compliance Screening Report (CCS)</u> - Present?	<input checked="" type="checkbox"/>	—	—
ACTION: If no, contact RSOC.			
A.1.2 <u>Record of Communication (from RSOC)</u> - Present?	<input checked="" type="checkbox"/>	—	—
ACTION: If no, request from RSOC.			
A.1.3 <u>Trip Report</u> - Present and complete?	<input checked="" type="checkbox"/>	—	—
ACTION: If no, contact RSOC for trip report.			
A.1.4 <u>Sample Traffic Report</u> - Present?	<input checked="" type="checkbox"/>	—	—
Legible?	<input checked="" type="checkbox"/>	—	—
ACTION: If no, request from Regional Sample Control Center (RSOC).			
A.1.5 <u>Cover Page</u> - Present?	<input checked="" type="checkbox"/>	—	—
Is cover page properly filled in and signed by the lab manager or the manager's designee?	<input checked="" type="checkbox"/>	—	—
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	<input checked="" type="checkbox"/>	—	—
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	<input checked="" type="checkbox"/>	—	—
(b) Form I's?	<input checked="" type="checkbox"/>	—	—
ACTION: If no for any of the above, contact RSOC for clarification.			

Ref No 4,000,180 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

A.1.6 Form I to IX Yes No N/A

A.1.6.1 Are all the Form I through Form IX labeled with:

Laboratory name?	<input checked="" type="checkbox"/>	—	—
Case/SAS number?	<input checked="" type="checkbox"/>	—	—
EPA sample No.?	<input checked="" type="checkbox"/>	—	—
SDG No.?	<input checked="" type="checkbox"/>	—	—
Contract No.?	<input checked="" type="checkbox"/>	—	—
Correct units?	<input checked="" type="checkbox"/>	—	—
Matrix?	<input checked="" type="checkbox"/>	—	—

ACTION: If no for any of the above, note under
Contract Problem/Non-Compliance section
of the "Data Assessment Narrative".

A.1.6.2 Do any computation/transcription errors exceed 10% of
reported values on Forms I-IX for:

(NOTE: Check all forms against raw data.)

(a) all analytes analyzed by ICP?	<input checked="" type="checkbox"/>	—	—
(b) all analytes analyzed by GEAA?	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
(c) all analytes analyzed by AA Flame?	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
(d) Mercury?	<input checked="" type="checkbox"/>	—	—
(e) Cyanide?	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>

ACTION: If yes, prepare Telephone Log, contact
laboratory for corrected data and
correct errors with red pencil and initial.

Ref No 4, 19 of 69

Page 6 of 34

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.7	<u>Raw Data</u>			
A.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Digestion Log for furnace AA Form XIII present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Distillation Log for mercury Form XIII present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Distillation Log for cyanides Form XIII present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Are preparation dates present on sample preparation logs/bench sheets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A.1.7.2	Measurement read out record present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ICP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Flame AA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Furnace AA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Mercury	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cyanides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A.1.7.3	Are all raw data to support all sample analyses and QC operations present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Properly Labeled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

Ref No. 20 of 69

STANDARD OPERATING PROCEDURE

Page 7 of 34

Title: Evaluation of Metals for the Contract
Laboratory Program
Appendix A.1: Data Assessment - Contract

Date: Jan. 1992
Number: HW-2
Revision: 11

Compliance (Total Review)

	YES	NO	N/A
A.1.8 <u>Holding Times</u> - (aqueous and soil samples)			
(Examine sample traffic reports and digestion/distillation logs.)			
Mercury analysis (28 days) exceeded?	—	<input checked="" type="checkbox"/>	—
Cyanide distillation (14 days) exceeded?	—	<input checked="" type="checkbox"/>	—
Other Metals analysis (6 months) exceeded?	—	<input checked="" type="checkbox"/>	—
<p>NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.</p> <p>ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.</p>			
A.1.8.2 Is pH of aqueous samples for:			
Metals Analysis >2?	—	<input checked="" type="checkbox"/>	—
Cyanides Analysis <12?	—	<input checked="" type="checkbox"/>	—
<p>Action: If yes, flag the associated metals and cyanides data as estimated.</p>			
A.1.9 <u>Form I (Final Data)</u>			
A.1.9.1 Are all Form I's present and complete?	<input checked="" type="checkbox"/>	—	—
<p>ACTION: If no, prepare telephone record log and contact laboratory for submittal.</p>			
A.1.9.2 Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	<input checked="" type="checkbox"/>	—	—
Are soil sample results for each parameter corrected for percent solids?	<input checked="" type="checkbox"/>	—	—
Are all "less than IDL" values properly coded with "U"?	<input checked="" type="checkbox"/>	—	—

Ref No 418 21 of 69

101629

STANDARD OPERATING PROCEDURE

Page 8 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
	Are the correct concentration qualifiers used with final data?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.			
A.1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Was a brief physical description of samples given on Form I's?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the "Data Assessment Narrative".			
A.1.10	<u>Calibration</u>			
A.1.10.1	Is record of at least 2 point calibration present for ICP analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Is record of 5 point calibration present for Hg analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Is record of 4 point calibration present for:			
	Flame AA?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Furnace AA?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cyanides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Is one calibration standard at the CRL level for all AA (except Hg) and cyanides analyses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".			

R/No 40 22 of 69

101630

STANDARD OPERATING PROCEDURE

Page 9 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

	YES	NO	N/A
A.1.10.2 Is correlation coefficient less than 0.995 for:			
Mercury Analysis?	—	<input checked="" type="checkbox"/>	—
Cyanide Analysis?	—	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Atomic Absorption Analysis?	—	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

A.1.10.3	In the instance where less than 4 standards are measured in absorbance (or peak area, peak height, etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration within $\pm 10\%$ of the true values?	<input type="checkbox"/>	—	<input checked="" type="checkbox"/>
----------	---	--------------------------	---	-------------------------------------

ACTION: If no, flag the associated data as estimated if standards are not within $\pm 10\%$ of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

A.1.11 Form II A (Initial and Continuing Calibration Verification)-

A.1.11.1	Present and complete for every metal and cyanide?	<input checked="" type="checkbox"/>	—	—
	Present and complete for AA and ICP when both are used for the same analyte?	<input checked="" type="checkbox"/>	—	—

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2	Circle on each Form IIA all percent recoveries that are outside the contract windows. Are all calibration standards (initial and continuing) within control limits:			
----------	--	--	--	--

Metals- 90-1104R?	<input checked="" type="checkbox"/>	—	—
Hg - 80-1204R?	<input checked="" type="checkbox"/>	—	—
Cyanides- 85-1154R?	<input type="checkbox"/>	—	—

Ref No 4. 23 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or OCV %R is 75-89% (CN, 70-84% ; Hg, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or OCV is outside the range 75-125% (CN, 70-130%; Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.

YES NO N/A

A.1.11.3 Was continuing calibration performed every 10 samples or every 2 hours?

☒ ☐ ☐

Was ICV for cyanides distilled?

☐ ☐ ☒

ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.12 Form II B (CRL Standards for AA and ICP) -

A.1.12.1 Was a CRL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?

☒ ☐ ☐

Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?

☐ ☐ ☒

Was a 2xCRL (or 2xIDL when IDL>CRL) analyzed (CRI) for each ICP run?

☒ ☐ ☐

(Note: CRI for AL, Ba, Ca, Fe, Mg, Na, or K is not required.)

ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges.

The affected ranges are:

AA Analysis - **True Value \pm CRL

ICP Analysis - **True Value \pm 2CRL

CN Analysis - **True Value \pm 0.5 x True Value.

**True value of CRA, CRI or mid-range standard. Substitute IDL for CRL when IDL > CRL
Compute the concentration of the missing mid-range standard from the calibration range.

Ref No 240f69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

	YES	NO	N/A
A.1.12.2 Was CRI analyzed after ICV/ICB and before the final OCV/OCB, and twice every eight hours of ICP run?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".

A.1.12.3 Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.

Are CRA and CRI standards within control limits:

Metals 80 - 120%?

☐☒

Is mid-range standard within control limits:

Cyanide 80 - 120%?

☐☒

ACTION: Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.

Note: Flag or reject the final results only when sample raw data are within the affected ranges and the CRUL standards are outside the acceptance windows.

A.1.13 Form III (Initial and Continuing Calibration Blanks)

A.1.13.1 Present and complete?

☒☐

For both AA and ICP when both are used for the same analyte?

☒☐

Was an initial calibration blank analyzed?

☒☐

Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?

☒☐

25 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

	YES	NO	N/A
ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/Non-Compliance section of the "Data Assessment Narrative".			
A.1.13.2 Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).			
Are all calibration blanks (when IDL < CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are all calibration blanks less than two times Instrument Detection Limit (when IDL > CRDL)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ACTION: If no for any of the above, flag as estimated (J) positive sample results when <u>raw sample value</u> is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2xIDL) and nearest good calibration blank. Flag five samples on either side of the calibration blank outside the control limits.			
A.1.14 <u>FORM III (Preparation Blank)</u> - (Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.14.1 Was one prep. blank analyzed for:			
each Sample Delivery Group (SDG)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each batch of digested samples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
each matrix type?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
both AA and ICP when both are used for the same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTION: If no for any of the above, flag as estimated (J) all the associated positive data < 10 x IDLs for which prep. blank was not analyzed.			
NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			

4/13/92 260f69

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Page 13 of 34
Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep. blank?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.			
A.1.14.3	Is concentration of prep. blank value (Form III) less than two times IDL, when IDL is greater than CRDL?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	ACTION: If no, reject (red-line) all positive sample results when sample raw data are less than 10 times the prep. blank value.			
A.1.14.4	Is concentration of prep. blank below the negative CRDL?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.			
A.1.15	<u>Form IV (ICP Interference Check Sample)</u>			
A.1.15.1	Present and complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
	Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ACTION: If no, flag as estimated (J) all the samples for which Al, Ca, Fe, or Mg is higher than in ICS.			
A.1.15.2	Circle all values on each Form IV that are more than $\pm 20\%$ of true or established mean value.			
	Are all Interference Check Sample results inside the control limits ($\pm 20\%$)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

27 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HM-2
Revision: 11

		YES	NO	N/A
ACTION: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").				
A.1.16 Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation)- (Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)				
A.1.16.1	Present and complete for:			
	each SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	each matrix type?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	each conc. range (i.e. low, med., high)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	For both AA and ICP when both are used for the same analyte?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SCW for which spiked sample was not analyzed.				
NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).				
A.1.16.2	Was field blank used for spiked sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTION: If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.				
A.1.16.3	Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).			
	Are all recoveries within control limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	If no, is sample concentration greater than or equal to four times spike concentration?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Ref No. 100-28069

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

YES NO N/A

ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.

Are results outside the control limits (75-125%)
flagged with "N" on Form I's and Form VA? ☒ YES ☐ NO ☐ N/A

ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".

A.1.16.4 Aqueous

Are any spike recoveries:

(a) less than 30%? ☐ YES ☒ NO ☐ N/A

(b) between 30-74%? ☒ YES ☐ NO ☐ N/A

(c) between 126-150%? ☐ YES ☒ NO ☐ N/A

(d) greater than 150%? ☐ YES ☒ NO ☐ N/A

ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".

A.1.16.5 Soil/Sediment

Are any spike recoveries:

(a) less than 10%? ☐ YES ☒ NO ☐ N/A

(b) between 10-74%? ☒ YES ☐ NO ☐ N/A

(c) between 126-200%? ☒ YES ☐ NO ☐ N/A

(d) greater than 200%? ☐ YES ☒ NO ☐ N/A

Ref to file 29 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
ACTION:	If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".			
A.1.17	<u>Form VI (Lab Duplicates)</u>			
A.1.17.1	Present and complete for:			
	each SDG?	<input checked="" type="checkbox"/>		
	each matrix type?	<input checked="" type="checkbox"/>		
	each concentration range (i.e. low, med., high)?	<input checked="" type="checkbox"/>		
	both AA and ICP when both are used for the same analyte?	<input checked="" type="checkbox"/>		
ACTION:	If no for any the above, flag as estimated (J) all the data \geq CRDL* for which duplicate sample was not analyzed.			
Note:	1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated. 2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.			
A.1.17.2	Was field blank used for duplicate analysis?		<input checked="" type="checkbox"/>	
ACTION:	If yes, flag all data \geq CRDL* as estimated (J) for which field blank was used as duplicate.			
A.1.17.3	Are all values within control limits (RPD 20% or difference $\leq \pm$ CRDL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	If no, are all results outside the control limits flagged with an * on Form I's and VI?	<input checked="" type="checkbox"/>		
ACTION:	If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			

* Substitute IDL for CRDL when IDL > CRDL.

11/16/92 30 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

YES NO N/A

- NOTE:** 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

A.1.17.4 Aqueous

Circle on each Form VI all values that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL? ☒

Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL? ☒

ACTION: If yes, flag the associated data as estimated.

A.1.17.5 Soil/Sediment

Circle on each Form VI all values that are:

RPD > 100%, or
Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) :

> 100%? ☒

Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) :

> 2x*CRDL? ☒

* Substitute IDL for CRDL when IDL > CRDL.

** Use absolute values of sample and duplicate to calculate the difference.

3/10/92 37 of 69

STANDARD OPERATING PROCEDURE

Page 18 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

YES NO N/A

ACTION: If yes, flag the associated data as estimated.

A.1.18 Field Duplicates

A.1.18.1 Were field duplicates analyzed? ☒ ☐ ☐

ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.

- NOTE: 1. Do not calculate RPD when both values are less than IDL.
2. Flag all associated data only for field duplicate pair.

A.1.18.2 Aqueous

Circle all values on self prepared Form VI for field duplicates that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL? ☒ ☐ ☐

Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL? ☒ ☐ ☐

ACTION: If yes, flag the associated data as estimated.

* Substitute IDL for CRDL when IDL > CRDL.

** Use absolute values of sample and duplicate to calculate the difference.

By V. J. 32 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

YES NO N/A

A.1.18.3 Soil/Sediment

Circle all values on self prepared Form VI for
field duplicates that are:

RPD >100%, or

Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both
greater than 5 times *CRDL) :

>100%?

— ☒ —

Is any **difference between sample and duplicate
(where sample and/or duplicate is less than 5x *CRDL) :

>2x *CRDL?

— ☒ —

ACTION: If yes, flag the associated data as estimated.

A.1.19 Form VII (Laboratory Control Sample) (Note: LCS - not
required for aqueous Hg and cyanide analyses.)

A.1.19.1 Was one LCS prepared and analyzed for:

each SDG?

☒ — —

each batch samples digested/distilled?

☒ — —

both AA and ICP when both are used for the same
analyte?

☒ — —

ACTION: If no for any of the above, prepare Telephone
Record Log and contact laboratory for submittal
of results of LCS. Flag as estimated (J) all
the data for which LCS was not analyzed.

NOTE: If only one LCS was analyzed for more than 20
samples, then first 20 samples close to LCS
do not have to be flagged as estimated.

- * Substitute IDL for CRDL when IDL > CRDL.
- ** Use absolute values of sample and duplicate to calculate the difference.

Ref No 4p: 33 of 69

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

A.1.19.2

Aqueous LCS

Circle on each Form VII the LCS percent recoveries
outside control limits (80 - 120%) except for aqueous
Ag and Sb.

	YES	NO	N/A
Is any LCS recovery: less than 50%?	—	<input checked="" type="checkbox"/>	—
between 50% and 79%?	—	<input checked="" type="checkbox"/>	—
between 121% and 150%?	—	<input checked="" type="checkbox"/>	—
greater than 150%?	—	<input checked="" type="checkbox"/>	—

ACTION: Less than 50%, reject (red-line) all data;
between 50% and 79%, flag all associated data
as estimated (J); between 121% and 150%, flag
all positive (not flagged with a "U") results
as estimated; greater than 150%, reject all
positive results.

A.1.19.3

Solid LCS

- NOTE:** 1. If "Found" value of LCS is rejectable due to duplicate
injections or analytical spike recovery criteria,
regardless of LCS recovery, flag the associated data
as estimated (J).
2. If IDL of an analyte is equal to or greater than
true value of LCS, disregard the "Action" below even
though LCS is out of control limits.

Is LCS "Found" value higher than the control
limits on Form VII? — ☒ —

ACTION: If yes, qualify all associated positive data
as estimated.

Is LCS "Found" value lower than the Control
limits on Form VII? — ☒ —

ACTION: If yes, qualify all associated data as
estimated.

101642-34 of 69

STANDARD OPERATING PROCEDURE

Page 21 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.20	<u>Form IX (ICP Serial Dilution) -</u>			
	<u>NOTE:</u> Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
A.1.20.1	Was Serial Dilution analysis performed for:			
	each SDG?	<input checked="" type="checkbox"/>	—	—
	each matrix type?	<input checked="" type="checkbox"/>	—	—
	each concentration range (i.e. low, med.)?	<input checked="" type="checkbox"/>	—	—
	<u>ACTION:</u> If no for any of the above, flag as estimated all the positive data $\geq 10 \times \text{IDL}$ or $\geq \text{CRL}$ when $10 \times \text{IDL} \leq \text{CRL}$ for which Serial Dilution Analysis was not performed.			
A.1.20.2	Was field blank(s) used for Serial Dilution Analysis?	—	<input checked="" type="checkbox"/>	—
	<u>ACTION:</u> If yes, flag all associated data $\geq 10 \times \text{IDL}$ as estimated (J). If $10 \times \text{IDL} \leq \text{CRL}$, flag all data $\geq \text{CRL}$.			
A.1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	<input checked="" type="checkbox"/>	—	—
	<u>ACTION:</u> If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each Form IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	$\geq 100\%$?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

APP-35 of 69

101643

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
	ACTION: Flag as estimated (J) all the associated sample data $\geq 10 \times \text{IDL}$ (or $\geq \text{CRDL}$ when $10 \times \text{IDL} \leq \text{CRDL}$) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than $10 \times \text{IDL}$ (or $\geq \text{CRDL}$ when $10 \times \text{IDL} \leq \text{CRDL}$) for which PD is greater than or equal to 100%.			
	Note: Flag or reject on Form I's only the sample results whose associated raw data are $\geq 10 \times \text{IDL}$ (or $\geq \text{CRDL}$ when $10 \times \text{IDL} \leq \text{CRDL}$)			
A.1.21	<u>Furnace Atomic Absorption (AA) QC Analysis</u>			
A.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ACTION: If no for any of the above, flag all the associated data as estimated.			
A.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-200%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			

* Analytical spike is not required on the pre-digestion spiked sample.

36 of 69

STANDARD OPERATING PROCEDURE

Page 23 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

YES NO N/A

NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.

A.1.22 Form VIII (Method of Standard Addition Results)

A.1.22.1 Present?

☐ ☐ ☒

If no, is any Form I result coded with "S" or a "+"?

☐ ☐ ☒

ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.

A.1.22.2 Is coefficient of correlation for MSA less than 0.990 for any sample?

☐ ☐ ☒

ACTION: If yes, reject (red-line) the affected data.

A.1.22.3 Was *MSA required for any sample but not performed?

☐ ☐ ☒

Is coefficient of correlation for MSA less than 0.995?

☐ ☐ ☒

Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?

☐ ☐ ☒

ACTION: If yes for any of the above, flag all the associated data as estimated (J).

A.1.22.4 Was proper quantitation procedure followed correctly as outlined in the SOW on page E-23?

☐ ☐ ☒

ACTION: If no, note exception under Contract Problem/Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.

* MSA is not required on LCS and prep. blank.

Page 11 - 37 of 69

101645

STANDARD OPERATING PROCEDURE

Page 24 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

	YES	NO	N/A
A.1.23	<u>Dissolved/Total or Inorganic/Total Analytes -</u>		
A.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s). <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		
NOTE: 1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration. 2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents. 3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.			
A.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		
A.1.23.3	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%? <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>		
ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.			
A.1.24	<u>Form I (Field Blank) -</u>		
<u>(Note: Designate "Field Blank" as such on Form I.)</u>			
A.1.24.1	Circle all field blank values on Form I that are greater than CRDL, (or 2 x IDL when IDL > CRDL). Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples? <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

Rep 11-1, p. 38 of 66

101646

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

If no, was field blank value already rejected
due to other QC criteria?

YES	NO	N/A
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

ACTION: If no, reject (except field blank results)
all associated positive sample data less
than or equal to five times the field blank
value. Reject on Form I's the soil sample
results that when converted to ug/L on wet
basis are less than or equal to five times
the field blank value in ug/L.

A.1.25 Form X, XI, XII (Verification of Instrumental Parameters).

A.1.25.1 Is verification report present for:

Instrument Detection Limits (quarterly)?

ICP Interelement Correction Factors (annually)?

ICP Linear Ranges (quarterly)?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no, contact TPO of the lab.

A.1.25.2 Form X (Instrument Detection Limits) - (Note: IDL is not
required for Cyanide.)

A.1.25.2.1 Are IDLs present for: all the analytes?

all the instruments used?

For both AA and ICP when both are used for the same
analyte?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ACTION: If no for any of the above, prepare
Telephone Record Log and contact
laboratory.

A.1.25.2.2 Is IDL greater than ORL for any analyte?

If yes, is the concentration on Form I of the sample
analyzed on the instrument whose IDL exceeds ORL,
greater than 5 x IDL.

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

39 of 69

STANDARD OPERATING PROCEDURE

Page 26 of 34

Title: Evaluation of Metals Data for the
Contract Laboratory Program
Appendix A.1: Data Assessment - Contract
Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

YES NO N/A

Action : If no, flag as estimated all values less
than five times IDL of the instrument whose
IDL exceeds ODL.

A.1.25.3 Form XI (Linear Ranges)

A.1.25.3.1 Was any sample result higher than high linear range
of ICP.

— ☐ —

Was any sample result higher than the highest
calibration standard for non-ICP parameters?

— ☒ —

If yes for any of the above, was the
sample diluted to obtain the result on Form I?

☒ — —

ACTION: If no, flag the result reported on Form I
as estimated(J).

A.1.26 Percent Solids of Sediments

A.1.26.1 Are percent solids in sediment(s):

< 50%?

— ☒ —

< 10%?

— ☒ —

ACTION: If yes, qualify as estimated all the
results of a sample that has per cent
solids between 10%-50% (i.e. moisture
content between 50%-90%). Reject all
the results of a sample that has per cent
solids less than 10% (i.e. moisture content
greater than 90%).

NOTE: Reject or flag(J) only the sample results
that were not previously rejected or flagged
due to other QC criteria.

Ref 4.2-40 of 69

101648

CASE NARRATIVE

RECEIVED
FEB 7 1995

0001

Laboratory Name: ITAS Pittsburgh, Pennsylvania
Laboratory Code: ITPA
Project Name: USEPA/CLP
Inorganic SOW: ILM03.0
Project Number: 662004
Work Order Number: Q501060
Contract Number: 68-D3-0048
Case Number: 23123
SDG Number: MBKW54
Sample Number:

MBKW54	MBKW57	MBKW60	MBKW63
MBKW55	MBKW58	MBKW61	MBKW75
MBKW56	MBKW59	MBKW62	MBKW76

Shipment

Twelve water samples were received at the ITAS Pittsburgh Laboratory on January 12, 1995, for metals analysis.

Metals

A duplicate digestion and a matrix spike were performed on sample MBKW58. A serial dilution was performed on sample MBKW54.

The matrix spike recovery exceeded the 75 to 125 percent control limit for silver. All associated results were flagged with a "N" qualifier.

The serial dilution percent difference exceeded the control limit for zinc. All associated results were flagged with an "E" qualifier.

Samples MBKW55, MBKW56, MBKW57, MBKW58, MBKW58 Duplicate Digestate, MBKW58 Matrix Spike, MBKW59, MBKW60, MBKW61, MBKW62, and MBKW63 exceeded the linear range for sodium, and required dilution. All samples except MBKW58 Matrix Spike were analyzed diluted.

Sample MBKW55, MBKW56, MBKW58, MBKW58 Duplicate Digestion, MBKW58 Matrix Spike, MBKW59, and MBKW60 exceeded the calibration range for mercury, and required dilution.

B. J. F.
4/10/69

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

RECEIVED
FEB 7 1995
2

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKWS4

SOW No.: ILM03.0

EPA Sample No.

MBKW54
MBKW55
MBKW56
MBKW57
MBKW58
MBKW58D
MBKW58S
MBKW59
MBKW60
MBKW61
MBKW62
MBKW63
MBKW75
MBKW76

Lab Sample ID

MBKW54
MBKW55
MBKW56
MBKW57
MBKW58
MBKW58D
MBKW58S
MBKW59
MBKW60
MBKW61
MBKW62
MBKW63
MBKW75
MBKW76

Were ICP interelement corrections applied ?

Yes/No YES

Were ICP background corrections applied ?

Yes/No YES

If yes - were raw data generated before
application of background corrections ?

Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Name:

Date:

Title:

COVER PAGE - IN

ILM03.0

REVIEWED BY: Asst
DATE: 1/30/95

42 of 69
101650

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW54

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW54

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	M
7429-90-5	Aluminum	922		P
7440-36-0	Antimony	11.2	U	P
7440-38-2	Arsenic	48.7		P
7440-39-3	Barium	1040		P
7440-41-7	Beryllium	0.20	U	P
7440-43-9	Cadmium	1.6	U	P
7440-70-2	Calcium	37800		P
7440-47-3	Chromium	4.5	B	P
7440-48-4	Cobalt	1.4	U	P
7440-50-8	Copper	39.6		P
7439-89-6	Iron	3430		P
7439-92-1	Lead	92.8		P
7439-95-4	Magnesium	25100		P
7439-96-5	Manganese	76.5		P
7439-97-6	Mercury	1.2		CV
7440-02-0	Nickel	3.7	U	P
7440-09-7	Potassium	22200		P
7782-49-2	Selenium	2.6	U	P
7440-22-4	Silver	2.0	U	N P
7440-23-5	Sodium	465000		P
7440-28-0	Thallium	4.2	U	P
7440-62-2	Vanadium	10.5	B	P
7440-66-6	Zinc	136		E P
	Cyanide			NR

Color Before: YELLOW Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLOUDY Artifacts: _____

Comments:

Ref No 4, 2. 43 of 69
101651

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW55

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW55

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	230			P
7440-36-0	Antimony	11.2	U		P
7440-38-2	Arsenic	97.4			P
7440-39-3	Barium	212			P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	1.6	U		P
7440-70-2	Calcium	18900			P
7440-47-3	Chromium	31.7			P
7440-48-4	Cobalt	1.4	U		P
7440-50-8	Copper	38.6			P
7439-89-6	Iron	1710			P
7439-92-1	Lead	9.1			P
7439-95-4	Magnesium	19900			P
7439-96-5	Manganese	20.7			P
7439-97-6	Mercury	30.5			CV
7440-02-0	Nickel	10.6	B		P
7440-09-7	Potassium	41100			P
7782-49-2	Selenium	2.6	U		P
7440-22-4	Silver	2.0	U	N	P
7440-23-5	Sodium	895000			P
7440-28-0	Thallium	4.2	U		P
7440-62-2	Vanadium	65.3			P
7440-66-6	Zinc	52.9		E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: BROWN Clarity After: CLOUDY Artifacts:

Comments:

Hg X 10
Na X 5

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW56

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW56

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3170			P
7440-36-0	Antimony	11.2	U		P
7440-38-2	Arsenic	54.9			P
7440-39-3	Barium	1770			P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	6.6			P
7440-70-2	Calcium	100000			P
7440-47-3	Chromium	25.0			P
7440-48-4	Cobalt	4.3	B		P
7440-50-8	Copper	106			P
7439-89-6	Iron	7760			P
7439-92-1	Lead	78.1			P
7439-95-4	Magnesium	193000			P
7439-96-5	Manganese	191			P
7439-97-6	Mercury	93.0			CV
7440-02-0	Nickel	8.2	B		P
7440-09-7	Potassium	122000			P
7782-49-2	Selenium	2.6	U		P
7440-22-4	Silver	2.0	U	N	J P
7440-23-5	Sodium	2060000			P
7440-28-0	Thallium	4.2	U		J P
7440-62-2	Vanadium	15.2	B		P
7440-66-6	Zinc	329		E	J P
	Cyanide				NR

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: BROWN Clarity After: CLOUDY Artifacts:

Comments:

Hg X10
Na X10

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW57

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (Soil/Water): WATER

Lab Sample ID: MBKW57

Level (Low/Med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	M
7429-90-5	Aluminum	19.6	B	P
7440-36-0	Antimony	11.2	U	P
7440-38-2	Arsenic	73.5		P
7440-39-3	Barium	12.5	B	P
7440-41-7	Beryllium	0.20	U	P
7440-43-9	Cadmium	1.6	U	P
7440-70-2	Calcium	535000		P
7440-47-3	Chromium	1.8	U	P
7440-48-4	Cobalt	3.9	B	P
7440-50-8	Copper	1.1	U	P
7439-89-6	Iron	20000		P
7439-92-1	Lead	0.90	U	P
7439-95-4	Magnesium	91700		P
7439-96-5	Manganese	806		P
7439-97-6	Mercury	0.20	U	CV
7440-02-0	Nickel	3.7	U	P
7440-09-7	Potassium	75800		P
7782-49-2	Selenium	2.6	U	P
7440-22-4	Silver	2.0	U	N P
7440-23-5	Sodium	1920000		P
7440-28-0	Thallium	4.2	U	J P
7440-62-2	Vanadium	2.9	B	P
7440-66-6	Zinc	137		E J P
	Cyanide			NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Na x10

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW58

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW58

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	IM
7429-90-5	Aluminum	446		P
7440-36-0	Antimony	11.2	U	P
7440-38-2	Arsenic	127		P
7440-39-3	Barium	800		P
7440-41-7	Beryllium	0.20	U	P
7440-43-9	Cadmium	3.0	B	P
7440-70-2	Calcium	217000		P
7440-47-3	Chromium	10	B	P
7440-48-4	Cobalt	1.9	B	P
7440-50-8	Copper	29.4		P
7439-89-6	Iron	6990		P
7439-92-1	Lead	27.5		P
7439-95-4	Magnesium	142000		P
7439-96-5	Manganese	526		P
7439-97-6	Mercury	44.6		CV
7440-02-0	Nickel	3.7	U	P
7440-09-7	Potassium	77500		P
7782-49-2	Selenium	2.6	U	P
7440-22-4	Silver	2.0	U	N J P
7440-23-5	Sodium	2120000		P
7440-28-0	Thallium	4.2	U	J P
7440-62-2	Vanadium	14.2	B	P
7440-66-6	Zinc	303		E J P
	Cyanide			NR

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: BROWN Clarity After: CLOUDY Artifacts:

Comments:

Hg X10
 NO X10

1
INORGANIC ANALYSES DATA SHEET

MBKW59

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW59

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	CI	Q	IM
17429-90-5	Aluminum	4480		J	P
17440-36-0	Antimony	11.2	UI		P
17440-38-2	Arsenic	126		J	P
17440-39-3	Barium	9580			P
17440-41-7	Beryllium	0.28	B		P
17440-43-9	Cadmium	4.3	B	J	P
17440-70-2	Calcium	90400			P
17440-47-3	Chromium	46.8		J	P
17440-48-4	Cobalt	10.3	B		P
17440-50-8	Copper	103		J	P
17439-89-6	Iron	12200		J	P
17439-92-1	Lead	104		J	P
17439-95-4	Magnesium	182000			P
17439-96-5	Manganese	610			P
17439-97-6	Mercury	65.3			CV
17440-02-0	Nickel	12.0	B	J	P
17440-09-7	Potassium	68800			P
17782-49-2	Selenium	2.6	UI		P
17440-22-4	Silver	2.0	UI	N	J P
17440-23-5	Sodium	1620000			P
17440-28-0	Thallium	4.2	UI		P
17440-62-2	Vanadium	14.5	B	J	P
17440-66-6	Zinc	316		E	J P
	Cyanide				NR

Color Before: BROWN

Clarity Before: CLOUDY

Texture:

Color After: BROWN

Clarity After: CLOUDY

Artifacts:

Comments:

Hg x 10
Na x 10Ref No 4, p. 48 of 69
101656

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW60

Lab Name: ITHS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPH Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW60

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	23600			P
7440-36-0	Antimony	11.2	U		P
7440-38-2	Arsenic	336			P
7440-39-3	Barium	6800			P
7440-41-7	Beryllium	1.3	B		P
7440-43-9	Cadmium	33.0			P
7440-70-2	Calcium	133000			P
7440-47-3	Chromium	231			P
7440-48-4	Cobalt	22.9	B		P
7440-50-8	Copper	520			P
7439-89-6	Iron	53800			P
7439-92-1	Lead	446			P
7439-95-4	Magnesium	255000			P
7439-96-5	Manganese	950			P
7439-97-6	Mercury	60.2			CV
7440-02-0	Nickel	60.6			P
7440-09-7	Potassium	94800			P
7782-49-2	Selenium	4.9	B		P
7440-22-4	Silver	8.3	B	N	P
7440-23-5	Sodium	2160000			P
7440-28-0	Thallium	4.2	U		P
7440-62-2	Vanadium	83.9			P
7440-66-6	Zinc	1440		E	P
	Cyanide				NR

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: BROWN Clarity After: CLOUDY Artifacts:

Comments:

Hg x 25
Na x 10

Ref No 418 49069

INORGANIC ANALYSES DATA SHEET

MBKW61

Lab Name: ITHS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (solid/water): WATER

Lab Sample ID: MBKW61

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	IM
7429-90-5	Aluminum	54.2	B	P
7440-36-0	Antimony	11.2	U	P
7440-38-2	Arsenic	55.1		P
7440-39-3	Barium	113	B	P
7440-41-7	Beryllium	0.20	U	P
7440-43-9	Cadmium	1.6	U	P
7440-70-2	Calcium	64400		P
7440-47-3	Chromium	1.8	U	P
7440-48-4	Cobalt	1.4	U	P
7440-50-8	Copper	4.2	B	P
7439-89-6	Iron	2150		P
7439-92-1	Lead	1.3	B	J P
7439-95-4	Magnesium	123000		P
7439-96-5	Manganese	565		P
7439-97-6	Mercury	1.00		CV
7440-02-0	Nickel	3.7	U	P
7440-09-7	Potassium	52700		P
7782-49-2	Selenium	2.6	U	P
7440-22-4	Silver	2.0	U	N J P
7440-23-5	Sodium	1100000		P
7440-28-0	Thallium	4.2	U	P
7440-62-2	Vanadium	2.5	B	P
7440-66-6	Zinc	33.7		E J P
	Cyanide			NR

Color Before: YELLOW

Clarity Before: CLOUDY

Texture: _____

Color After: YELLOW

Clarity After: CLOUDY

Artifacts: _____

Comments:

Na x 5

Ref No 4, p. 50 of 69

101658

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW62

Lab Name: ITAS_PITTSBURGH Contract: 88-D3-0048

Lab Code: IIPA Case No.: E3123 SAS No.: SDG No.: MBKW54

Matrix (Soil/Water): WATER

Lab Sample ID: MBKW62

Level (Low/Med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	M
7429-90-5	Aluminum	96.318		P
7440-36-0	Antimony	11.210		P
7440-38-2	Arsenic	62.91		P
7440-39-3	Barium	18018		P
7440-41-7	Beryllium	0.2010		P
7440-43-9	Cadmium	1.610		P
7440-70-2	Calcium	85800		P
7440-47-3	Chromium	1.810		P
7440-48-4	Cobalt	1.410		P
7440-50-8	Copper	5.618		P
7439-89-6	Iron	2400		P
7439-92-1	Lead	2.018		P
7439-95-4	Magnesium	183000		P
7439-96-5	Manganese	516		P
7439-97-6	Mercury	2.01		CV
7440-02-0	Nickel	3.710		P
7440-09-7	Potassium	67800		P
7782-49-2	Selenium	2.610		P
7440-22-4	Silver	2.010	N	P
7440-23-5	Sodium	1590000		P
7440-28-0	Thallium	4.210		P
7440-62-2	Vanadium	3.818		P
7440-66-6	Zinc	47.61	E	P
	Cyanide			NR

Color Before: YELLOW Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLOUDY Artifacts: _____

Comments: Na x10

Ref No. 570669

1
INORGANIC ANALYSES DATA SHEET

MBKW63

Lab Name: ITAS_PITTSBURGH Contract: 68-D3-0048

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW63

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	M
7429-90-5	Aluminum	866		P
7440-36-0	Antimony	11.2	U	P
7440-38-2	Arsenic	23.8		P
7440-39-3	Barium	319		P
7440-41-7	Beryllium	0.20	U	P
7440-43-9	Cadmium	1.6	U	P
7440-70-2	Calcium	148000		P
7440-47-3	Chromium	4.3	B	P
7440-48-4	Cobalt	1.4	U	P
7440-50-8	Copper	27.1		P
7439-89-6	Iron	2060		P
7439-92-1	Lead	14.0		P
7439-95-4	Magnesium	394000		P
7439-96-5	Manganese	206		P
7439-97-6	Mercury	3.7		CV
7440-02-0	Nickel	3.7	U	P
7440-09-7	Potassium	144000		P
7782-49-2	Selenium	2.6	U	P
7440-22-4	Silver	2.0	U	N J P
7440-23-5	Sodium	3640000		P
7440-28-0	Thallium	4.2	U	P
7440-62-2	Vanadium	5.1	B	P
7440-66-6	Zinc	74.4		E J P
	Cyanide			NR

Color Before: YELLOW Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLOUDY Artifacts:

Comments:

Na x10

INORGANIC ANALYSES DATA SHEET

Lab Name: ITHS_PITTSBURGH Contract: 68-D3-0048

MBKW75

Field Blank

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW54

Matrix (soil/water): WATER

Lab Sample ID: MBKW75

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	Q	M
7429-90-5	Aluminum	52.6181		P
7440-38-0	Antimony	11.2101		P
7440-38-2	Arsenic	1.4101		P
7440-39-3	Barium	0.85181		P
7440-41-7	Beryllium	0.20101		P
7440-43-9	Cadmium	1.6101		P
7440-70-2	Calcium	559181		P
7440-47-3	Chromium	1.8101		P
7440-48-4	Cobalt	1.4101		P
7440-50-8	Copper	4.1181		P
7439-89-6	Iron	28.6181		P
7439-92-1	Lead	0.90101		P
7439-95-4	Magnesium	41.7181		P
7439-96-5	Manganese	0.50101		P
7439-97-6	Mercury	0.20101		CV
7440-02-0	Nickel	3.7101		P
7440-09-7	Potassium	360101		P
7782-49-2	Selenium	2.6101		P
7440-22-4	Silver	2.0101	N	P
7440-23-5	Sodium	1180181		P
7440-28-0	Thallium	4.2101		P
7440-62-2	Vanadium	1.5101		P
7440-66-6	Zinc	3.8181	E	P
	Cyanide			NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

Ref No 4, p. 53 of 69

INORGANIC ANALYSES DATA SHEET

Lab Name: ITHS_PITTSBURGH

Contract: 68-03-0048

MBKW76

Lab Code: ITHA

Case No.: 23123

SAS No.:

SDG No.: MBKWS4

Matrix (soil/water): WATER

Lab Sample ID: MBKW76

Level (low/med): LOW

Date Received: 01/12/95

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CHS No.	Analyte	Concentration	Q	IM
7429-90-5	Aluminum	46.7	B	P
7440-36-0	Antimony	11.2	U	P
7440-38-2	Arsenic	1.4	U	P
7440-39-3	Barium	1.0	B	P
7440-41-7	Beryllium	0.20	U	P
7440-43-9	Cadmium	1.6	U	P
7440-70-2	Calcium	588	B	P
7440-47-3	Chromium	1.8	U	P
7440-48-4	Cobalt	1.4	U	P
7440-50-8	Copper	3.3	B	P
7439-89-6	Iron	24.4	B	P
7439-92-1	Lead	0.90	U	P
7439-95-4	Magnesium	18.6	B	P
7439-96-5	Manganese	0.50	U	P
7439-97-6	Mercury	0.20	U	CV
7440-02-0	Nickel	3.7	U	P
7440-09-7	Potassium	360	U	P
7782-49-2	Selenium	2.6	U	P
7440-22-4	Silver	2.0	U	N P
7440-23-5	Sodium	1010	B	P
7440-28-0	Thallium	4.2	U	P
7440-62-2	Vanadium	1.5	U	P
7440-66-6	Zinc	9.3	B	E P
	Cyanide			NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

SAMPLE DELIVERY GROUP (SDG) TRAFFIC REPORT (TR) COVER SHEET

Lab Name: ITAS Pittsburgh Contract No.: 68-D3-004

Lab Code: ITPA Case No.: 23123 SAS No.:

Full Sample Analysis Price in Contract: \$

SDG No./First Sample in SDG: MBKW54 Sample Receipt Date: 1/12
(Lowest EPA Sample Number in first shipment of (MM/DD)
samples received under SDG.)

Last Sample in SDG: MBKW76 Sample Receipt Date: 1/12
(Highest EPA Sample Number in last shipment of (MM/DD)
samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	<u>MBKW54</u>	11	<u>MBKW76</u>
2	<u>MBKW55</u>	12	<u> </u>
3	<u>MBKW56</u>	13	<u> </u>
4	<u>MBKW57</u>	14	<u> </u>
5	<u>MBKW58</u>	15	<u> </u>
6	<u>MBKW59</u>	16	<u> </u>
7	<u>MBKW60</u>	17	<u> </u>
8	<u>MBKW61</u>	18	<u> </u>
9	<u>MBKW63</u>	19	<u> </u>
10	<u>MBKW75</u>	20	<u> </u>

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order
(i.e., the order listed on this form).

J. Smith
Signature

1-13-95
Date -

Ref 10-4, p. 55 of 69

February 6, 1995

INTERNATIONAL TECHNOLOGY CORPORATION

RECEIVED
FEB 7 1995

CCC1

CASE NARRATIVE

Laboratory Name: ITAS Pittsburgh, Pennsylvania
Laboratory Code: ITPA
Project Name: USEPA/CLP
Inorganic SOW: ILM03.0
Project Number: 662004
Work Order Number: Q501059
Contract Number: 68-D3-0048
Case Number: 23123
SDG Number: MBKW64

Sample Number:

MBKW64	MBKW68	MBKW72	MBKW78
MBKW66	MBKW69	MBKW73	MBKW79
MBKW67	MBKW70	MBKW74	

Shipment

Eleven soil samples were received at the ITAS Pittsburgh Laboratory on January 12, 1995, for metals analysis.

Metals

A duplicate digestion and a matrix spike were performed on sample MBKW68. A serial dilution was performed on sample MBKW64.

The matrix spike recovery exceeded the 75 to 125 percent control limit for antimony and lead. All associated results were flagged with a "N" qualifier.

The duplicate digestion RPD exceeded the 20 percent control limit for barium, cadmium, iron, manganese, zinc, lead, and arsenic. All associated results were flagged with a "*" qualifier.

Samples MBKW66, MBKW68, MBKW68 Duplicate Digestion, MBKW68 Matrix Spike, MBKW67, MBKW69, MBKW70, MBKW72, MBKW78, MBKW79, MBKW73, and MBKW74 exceeded the calibration range for mercury, and required dilution.

Ref No 415
560F69

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

2

Lab Name: 1149 PITTSBURGH

Contract: 15-03-0040

Lab Code: ITV

Case No.: 22122

EAS No.:

SLB No.: MBKW64

EOM No.: ILM03.2

EPA Sample No.

MBKW66
MBKW67
MBKW68
MBKW68D
MBKW68S
MBKW69
MBKW70
MBKW72
MBKW73
MBKW74
MBKW78
MBKW79

Lab Sample ID

MBKW66
MBKW67
MBKW68
MBKW68D
MBKW68S
MBKW69
MBKW70
MBKW72
MBKW73
MBKW74
MBKW78
MBKW79

Were ICP interelement corrections applied ?

Yes/No YES

Were ICP background corrections applied ?

Yes/No YES

If yes - were raw data generated before
application of background corrections ?

Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Name:

Date:

Title:

COVER PAGE - IN

ILM03.

1149, 1151 57 of 69

101665

INORGANIC ANALYSES DATA SHEET

MBKW64

Lab Code: LTPA

Contract: 13-D1-0048

Lab Code: LTPA

Case No.: 23122

SAS No.:

SDG No.: MBKW64

Lab Name: LTPA

Lab Sample ID: MBKW64

Level: Low-level: LTPA

Date received: 01/12/95

% Solids:

47.2

Concentration Units (ug/L or ng/g dry weight): MG/KG

CAS No.	Analyte	Concentration	Q	IM
7429-90-5	Aluminum	5490		J P
7440-38-0	Antimony	7.0	B	J P
7440-19-2	Arsenic	103	*	J P
7440-39-3	Barium	4890	*	J P
7440-41-7	Beryllium	0.47	B	J P
7440-43-9	Cadmium	24.2	*	J P
7440-70-2	Calcium	3880		J P
7440-47-3	Chromium	263		J P
7440-48-4	Cobalt	13.1	B	J P
7440-50-8	Copper	143		J P
7439-89-6	Iron	20800	*	J P
7439-92-1	Lead	617	N	J P
7439-95-4	Magnesium	1920	B	J P
7439-96-5	Manganese	233	*	J P
7439-97-6	Mercury	8.8		J CV
7440-02-0	Nickel	24.5		J P
7440-09-7	Potassium	576	B	J P
7782-49-2	Selenium	3.8		J P
7440-22-4	Silver	3.3	B	J P
7440-23-5	Sodium	948	B	J P
7440-28-0	Thallium	1.7	U	J P
7440-62-2	Vanadium	43.0		J P
7440-66-6	Zinc	12500	*	J P
	Cyanide			NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

ARTIFACTS: FREE WATER

EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

MBKW66

Lab Code: ITPA

Contract: 61-14-0048

Lab Code: ITPA

Case No.: 22122

SAS No.:

SDG No.: MBKW64

Lab Name: ITPA

Lab Sample ID: MBKW66

Lab Name: ITPA

Date received: 01/12/95

% Solids:

24.9

Concentration Units (ug/L or mg/kg or weight): MG/KG

CAS No.	Analyte	Concentration	C	D	M
7429-90-5	Aluminum	9140		J	P
7440-38-0	Antimony	5.0		N	P
7440-38-2	Arsenic	115		*	P
7440-39-3	Barium	5190		*	P
7440-41-7	Beryllium	0.74	B		P
7440-43-9	Cadmium	15.5		*	P
7440-70-2	Calcium	7100			P
7440-47-3	Chromium	100			P
7440-48-4	Cobalt	16.2	B		P
7440-50-8	Copper	383			P
7439-89-6	Iron	36800		*	P
7439-92-1	Lead	352		N	P
7439-95-4	Magnesium	7190			P
7439-96-5	Manganese	319		*	P
7439-97-6	Mercury	1060			CV
7440-02-0	Nickel	52.7		J	P
7440-09-7	Potassium	2470	B		P
7782-49-2	Selenium	5.6		J	P
7440-22-4	Silver	3.5	B		P
7440-23-5	Sodium	7320			P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	64.9			P
7440-66-6	Zinc	1030		*	P
	Cyanide				NR

Color Before: BLACK

Clarity Before:

Texture: MEDIUM

Color After: BLACK

Clarity After:

Artifacts: YES

Comments:

ARTIFACTS: FREE WATER AND SLUDGE

Hg X 100

FORM I - IN

ILM03.0

Ref No. 59 of 69

101667

EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

MBKW67

Site Name: ITAS PITTSBURGH Contract: 55-D3-WW48

Lab Code: ITPA Case No.: 23123 SAS No.: SDG No.: MBKW64

Lab Sample ID: MBKW67

Date Received: 01/12/95

Solids:

(45.0)

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	Q	P	M
7429-90-5	Aluminum	2330		J	P
7440-38-2	Antimony	4.9	J	N	P
7440-38-2	Arsenic	318		*	P
7440-39-3	Barium	4710		*	P
7440-41-7	Beryllium	0.23	B		P
7440-43-9	Cadmium	3.2		*	P
7440-70-2	Calcium	7970			P
7440-47-3	Chromium	19.6			P
7440-48-4	Cobalt	12.0	B		P
7440-50-8	Copper	65.6			P
7439-89-6	Iron	57300		*	P
7439-92-1	Lead	82.3		N	P
7439-95-4	Magnesium	1780	B		P
7439-96-5	Manganese	325		*	P
7439-97-6	Mercury	429			CV
7440-02-0	Nickel	12.9	B		P
7440-09-7	Potassium	490	B		P
7782-49-2	Selenium	2.6		J	P
7440-22-4	Silver	0.88	U		P
7440-23-5	Sodium	3430			P
7440-28-0	Thallium	1.8	U		P
7440-62-2	Vanadium	22.0	B		P
7440-66-6	Zinc	777		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ARTIFACTS: FREE WATER AND ROOTS

Hg x 50

FORM I - IN

ILM03.0

Ref No. 1, 60 of 69

101668

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MBKW68

Lab: 1785 B173800000

Contract: 55-02-0048

Lab Code: ITPA

Case No.: 33123

SAS No.: _____

SDG No.: MBKW64

Lab Sample ID: MBKW68

Date Received: 01/15/95

% Solids:

51.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

QAS No.	Analyte	Concentration	D	Q	IM
7429-93-5	Aluminum	6540			P
7440-86-2	Antimony	4.4	U	N	J P
7440-25-2	Arsenic	80.3		*	P
7440-39-3	Barium	18600		*	P
7440-41-7	Beryllium	0.54	B		P
7440-43-9	Cadmium	132		*	P
7440-70-2	Calcium	5040			P
7440-47-3	Chromium	59.5			P
7440-48-4	Cobalt	22.4			J P
7440-50-8	Copper	201			P
7439-29-6	Iron	25300		*	P
7439-93-1	Lead	182		N	J P
7439-95-4	Magnesium	3210			P
7439-95-5	Manganese	241		*	P
7439-97-6	Mercury	187			J CVI
7440-02-0	Nickel	20.3			J P
7440-09-7	Potassium	1080	B		P
7782-49-2	Selenium	3.0			J P
7440-22-4	Silver	2.3	B		P
7440-23-5	Sodium	7340			P
7440-29-0	Thallium	1.6	U		P
7440-68-2	Vanadium	26.6			P
7440-66-6	Zinc	9040		*	P
	Cyanide				NR

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUM

Color After: BROWN

Clarity After: _____

Artifacts: YES

Comments:

ARTIFACTS: FREE WATER, STONES, AND ROOTS

Hg X 25

INORGANIC ANALYSES DATA SHEET

MBKW69

Lab Code: ITPA

Contract: 33-1-0048

Lab Code: ITPA

Base No.: 23123

SAS No.: _____

SDG No.: MBKW64

Sample ID: MBKW69

Date Received: 01/12/95

% Solids:

31.3

Concentration Units (ug/L or ug/g dry weight): MG/KG

CAS No.	Analyte	Concentration	Q	M
7429-90-3	Aluminum	10900	J	P
7440-38-0	Antimony	7.1	N	P
7440-38-2	Arsenic	166	*	P
7440-39-3	Barium	36300	*	P
7440-41-7	Beryllium	0.65	B	P
7440-43-9	Cadmium	6.1	*	P
7440-70-2	Calcium	6270		P
7440-47-3	Chromium	150		P
7440-48-4	Cobalt	32.8	J	P
7440-50-8	Copper	279		P
7439-89-6	Iron	26000	*	P
7439-92-1	Lead	266	N	P
7439-95-4	Magnesium	7930		P
7439-96-5	Manganese	197	*	P
7439-97-6	Mercury	350		CV
7440-02-0	Nickel	47.0	J	P
7440-09-7	Potassium	3690	B	P
7782-49-2	Selenium	7.0	J	P
7440-22-4	Silver	3.8	B	P
7440-23-5	Sodium	12800		P
7440-28-0	Thallium	2.7	U	P
7440-62-2	Vanadium	50.4		P
7440-66-6	Zinc	490	*	P
	Cyanide			NR

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUM

Color After: BROWN

Clarity After: _____

Artifacts: YES

Comments:

ARTIFACTS: ROOTS

Hg x 25

Ref No 1, p. 62 of 69

EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

MBKW70

Lab Code: ITPB PITTSBURGH

Contract: 68-03-00048

Lab Code: ITPA

Case No.: 83185

EAS No.:

SDG No.: MBKW64

Lab Sample ID: MBKW70

Date Received: 01/12/82

% Solids:

33.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	Q	IM
7429-90-5	Aluminum	9310		J P
7440-25-0	Antimony	5.6	N	J P
7440-38-2	Arsenic	147	*	J P
7440-39-3	Barium	30600	*	J P
7440-41-7	Beryllium	0.63	B	J P
7440-43-9	Cadmium	6.6	*	J P
7440-70-2	Calcium	5830		J P
7440-47-3	Chromium	145		J P
7440-48-4	Cobalt	28.4	B	J P
7440-50-8	Copper	264		J P
7439-89-6	Iron	22700	*	J P
7439-92-1	Lead	258	N	J P
7439-95-4	Magnesium	7190		J P
7439-96-5	Manganese	198	*	J P
7439-97-6	Mercury	470		J CV
7440-02-0	Nickel	41.3		J P
7440-09-7	Potassium	2630	B	J P
7782-49-2	Selenium	6.6		J P
7440-22-4	Silver	4.0	B	J P
7440-23-5	Sodium	11800		J P
7440-28-0	Thallium	2.5	U	J P
7440-62-3	Vanadium	45.2		J P
7440-66-5	Zinc	448	*	J P
	Cyanide			J NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

ARTIFACTS: ROOTS

Hg x 50

Ref No 1, 2. 63 of 69

EPA SAMPLE NO.

INORGANIC ANALYSES DATA SHEET

MBKW72

Lab. Code: ITPA Case No.: 23122 SAS No.: SDG No.: MBKW64

Lab. Code: ITPA Case No.: 23122 SAS No.: SDG No.: MBKW64

Lab. Code: ITPA Case No.: 23122 SAS No.: SDG No.: MBKW64

% Solids:

30.5

Concentration Units (µg/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	Q	IM
7429-90-5	Aluminum	11500	J	P
7440-38-2	Antimony	7.1	N	P
7440-38-2	Arsenic	12.0	*	P
7440-39-3	Barium	12000	*	P
7440-41-7	Beryllium	0.86	B	P
7440-43-9	Cadmium	7.6	*	P
7440-70-2	Calcium	4020		P
7440-47-3	Chromium	144		P
7440-48-4	Cobalt	18.6	B	P
7440-50-8	Copper	389		P
7439-89-6	Iron	23100	*	P
7439-92-1	Lead	268	N	P
7439-95-4	Magnesium	5780		P
7439-96-3	Manganese	177	*	P
7439-97-6	Mercury	433	J	CV
7440-02-0	Nickel	52.9		P
7440-09-7	Potassium	2430	B	P
7782-49-2	Selenium	10.2		P
7440-22-4	Silver	4.9	B	P
7440-23-5	Sodium	12900		P
7440-28-0	Thallium	2.6	U	P
7440-62-2	Vanadium	43.5	J	P
7440-66-6	Zinc	526	*	P
	Cyanide			NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ARTIFACTS: ROOTS

Hg x50

FORM 1 - IN

ILM03.0

Ref No. 64 of 69

101672

INORGANIC ANALYSES DATA SHEET

MBKW73

Lab Order: 1000 Case No.: 23123 SAS No.: SDG No.: MBKW64

Date Received: 01/15/95

W Solids:

26.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	IM
7429-90-5	Aluminum	13300		J P
7440-38-0	Antimony	3.2	N	J P
7440-38-2	Arsenic	73.4	*	J P
7440-39-3	Barium	3140	*	J P
7440-41-7	Beryllium	1.2	B	J P
7440-43-9	Cadmium	4.5	*	J P
7440-70-2	Calcium	3950		J P
7440-47-3	Chromium	136		J P
7440-48-4	Cobalt	14.0	B	J P
7440-50-8	Copper	327		J P
7439-89-6	Iron	25300	*	J P
7439-92-1	Lead	312	N	J P
7439-95-4	Magnesium	6280		J P
7439-96-5	Manganese	209	*	J P
7439-97-6	Mercury	56.9		J CV
7440-02-0	Nickel	47.9		J P
7440-09-7	Potassium	2960	B	J P
7782-49-2	Selenium	7.6		J P
7440-22-4	Silver	3.7	B	J P
7440-23-5	Sodium	16200		J P
7440-28-0	Thallium	3.1	U	J P
7440-62-2	Vanadium	49.5		J P
7440-66-6	Zinc	502	*	J P
	Cyanide			NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ARTIFACTS: ROOTSHg X10

FORM I - IN

ILM03.0

Ref No 4, p. 65 of 69

101673

INORGANIC ANALYSES DATA SHEET

MBKW74

Lab Code: 1700

Sample No.: 20122

CAS No.: _____

SDG No.: MBKW64

Lab Name: 10: MBKW74

Date Received: 01/11/95

% Solids: 83.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	U	S	IM
7429-90-2	Aluminum	5700			P
7440-26-0	Antimony	2.5			P
7440-38-2	Arsenic	1.5	*		P
7440-39-3	Barium	1300	*		P
7440-41-7	Beryllium	0.25	P		P
7440-43-9	Cadmium	0.44	B	*	P
7440-70-2	Calcium	5080			P
7440-47-3	Chromium	19.1			P
7440-48-4	Cobalt	11.2	B		P
7440-50-8	Copper	78.0			P
7439-89-6	Iron	16500		*	P
7439-92-1	Lead	53.1		N	P
7439-95-4	Magnesium	5310			P
7439-96-5	Manganese	221		*	P
7439-97-6	Mercury	26.5			CV
7440-02-0	Nickel	20.8			P
7440-09-7	Potassium	237	P		P
7782-49-2	Selenium	0.89	2		P
7440-22-4	Silver	37.0			P
7440-23-5	Sodium	372	B		P
7440-28-0	Thallium	0.99	U		P
7440-62-2	Vanadium	42.2			P
7440-66-6	Zinc	195		*	P
	Cyanide				NR

Color Before: BROWN

Clarity Before: _____

Texture: MEDIUM

Color After: BROWN

Clarity After: _____

Artifacts: YES

Comments:

ARTIFACTS: ROOTS

Hg X10

Ref No 4, 660f69

EPA SAMPLE NO.

TABLE 1. *Salmonella* serotypes isolated from the 1990-1991 season

MEKw78

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1971) using a Shimadzu 1601 UV-Visible Spectrophotometer. The concentration of chlorophylls was expressed in mg/L.

... .. 09/47

1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 26

DATE: 01-01-2000

WHS NO. 2

WDG No. : 75KWB4

Abstract

Date Rec'd: 07/12/95

% Solids:

95. 5

Concentration Units (µg/L or ng/kg dry weight): MG/KG

CHS No.	Analyte	Concentration	C	D	M
7440-00-1	Antimony	4150			P
7440-16-0	Antimony	5.4	B	N	J P
7440-28-2	Arsenic	17.0		*	P
7440-39-3	Barium	816		*	P
7440-41-7	Beryllium	0.57	B		P
7440-43-0	Cadmium	0.36	U	*	P
7440-70-2	Calcium	2210			P
7440-47-3	Chromium	13.1			P
7440-48-4	Cobalt	17.9			J P
7440-50-8	Copper	156			P
7439-89-6	Iron	12100		*	P
7439-42-1	Lead	304		N	J P
7439-95-4	Magnesium	2760			P
7439-96-5	Manganese	145		*	P
7439-97-6	Mercury	110			CV
7440-02-0	Nickel	19.2			J P
7440-09-7	Potassium	495	B		P
7782-49-2	Selenium	0.66	B		J P
7440-22-4	Silver	0.45	U		P
7440-23-5	Sodium	624	B		P
7440-28-0	Thallium	0.95	U		P
7440-62-2	Vanadium	19.7			P
7440-66-6	Zinc	333		*	P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts: YES

Comments:

ARTIFACTS: SAND

Hg x 25

FORM 1 - IN

ILM03.0

App. 4 p. 67 of 69

101675

EPA SAMPLE NO.

ANALYTICAL DATA SHEET

MBKW79

Sample No. MBKW79

Date Received: 01/12/95

Solids: 22.7

Concentration Units (ug/L or ug/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	U	S	M
7440-38-2	Aluminum	15.4			P
7440-39-3	Arsenic	1.4	*		P
7440-39-3	Barium	2110	*		P
7440-41-7	Beryllium	3.48	B		P
7440-43-9	Cadmium	0.27	U	*	P
7440-70-2	Calcium	720	B		P
7440-47-3	Chromium	5.2		J	P
7440-48-4	Cobalt	3.4	B		P
7440-50-8	Copper	31.2			P
7439-89-6	Iron	4810		*	P
7439-92-1	Lead	12.0	N	J	P
7439-95-4	Magnesium	1030	B		P
7439-96-5	Manganese	54.7		*	P
7439-97-6	Mercury	98.9			CV
7440-02-0	Nickel	5.5	B		P
7440-09-7	Potassium	82.7	U		P
7782-49-2	Selenium	0.77	B	J	P
7440-22-4	Silver	0.46	U		P
7440-23-5	Sodium	147	B		P
7440-28-0	Thallium	0.96	U		P
7440-62-2	Vanadium	9.6	B		P
7440-65-5	Zinc	142		*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: BROWN Clarity After: Artifacts: YES

Comments:

ARTIFACTS: STONES

H9 x25

FORM I - IN

ILM03.0

Ref No 4, p 68 of 69

101676

SAMPLE DELIVERY GROUP (SDG) TRAFFIC REPORT (TR) COVER SHEET

Lab Name: ITAS Pittsburgh Contract No.: 68-D3-0041

Lab Code: ITPA Case No.: 23/23 SAS No.:

Full Sample Analysis Price in Contract: \$

SDG No./First Sample in SDG: MBKW 64 Sample Receipt Date: 1/12
(Lowest EPA Sample Number in first shipment of (MM/DD/ samples received under SDG.)

Last Sample in SDG: MBKW 79 Sample Receipt Date: 1/12
(Highest EPA Sample Number in last shipment of (MM/DD/ samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order:

1 <u>MBKW 64</u>	11 <u>MBKW 79</u>
2 <u>MBKW 66</u>	12 <u> </u>
3 <u>MBKW 67</u>	13 <u> </u>
4 <u>MBKW 68</u>	14 <u> </u>
5 <u>MBKW 69</u>	15 <u> </u>
6 <u>MBKW 70</u>	16 <u> </u>
7 <u>MBKW 72</u>	17 <u> </u>
8 <u>MBKW 73</u>	18 <u> </u>
9 <u>MBKW 74</u>	19 <u> </u>
10 <u>MBKW 78</u>	20 <u> </u>

Note: There are a maximum of 20 field samples in an SDG.

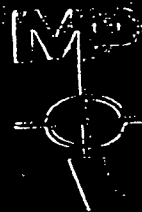
Attach Traffic Reports to this form in alphanumeric order
(i.e., the order listed on this form).

J. Smith
Signature

1-13-95
Date -

Per [unclear] 69 of 69

REFERENCE NO. 5



Field Book
748212

Ref. No. 5,
p. 1 of 32

Projects

LCF Chemicals

LINDEN, NJ

TABLE of Contents

	<u>page(s)</u>
On-Site Reconnaissance	2
SI Sampling Event	11

MINGOLO PRECISION PRODUCTS, INC.

174 South Main Street
HACKENSACK, NEW JERSEY 07601
(201) 488-6300

Ref. No. 5, p. 2 of 32

①

LCP

CHEMICALS

~~On-site Assessment~~

LINDEN, NJ

Report No: 8003-431

Ref. No. 5, p. 3 of 32

LCP Chemicals

On Site Reconnaissance

December 14, 1994

Intentionally
left

Ref. No. 5, p. 4 of 32

David Kelly
12/14/94

0900 Arrived the site, meet with
Randall Hanson of the Hansen Group.
Weather is overcast ~ 34.5°F.

Field Teams: David Hansen (DH) - Site Manager
Steve McNulty (SM) - H&S Officer
Timothy Young (TY) - Team member

0912 - SM conducts H&S Kickoff meeting

SM calibrates HNU:
Serial No. A11091
calibrated in 100% oxygen
Span setting = 9.8 C @ 8 ppm

move with Randall Hansen and Karl Daffin
(former LCP employee) to site.

Mr. Hansen said that lagoon sampling
is conducted yearly on July 1st
Sampling parameters believed to be almost
TAC / TSS

[Signature]
12/14/94

[Signature]
12/14/94

Ref. No. 5, p. 5 of 32

0930 move to brine sludge lagoon.

fragmites surround this area and the South Branch Creek.

~~12/11/94~~ The Brine Sludge Lagoon is not lined, however, the former Chem-Fix lagoon was lined. When the Chem-Fix Lagoon was closed, it was excavated and sludge into the Brine Sludge Lagoon.

It was stated the when there is a high tide and a full moon, the creek's water level rises approximately to the level of the monitoring wells.

No outfalls were seen on either side of the creek between MW's P1-P3 and

Ref. No. 5, p. 6 of 32

David Kelly
12/11/94

fragments line both sides of the creek's entire length.

- ICP discharges 1-2 times/year to the creek only rainwater.
- Staining was noted at the CCO outfall along both sides of the railroad tracks.
- stormwater pipe on east side of the tracks at the ICP outfall area had a stained appearance, was flaking, yellow/green in color, and it supposedly discharges from COT corporation.
- all of the sites ^{product} Hg cells, Hg process wastes were removed from the site - only rainwater remains.

page intentionally left blank

[Signature]
12/4/98

[Signature]
12/4/98

An Elizabethan 80 b. water
tunnel runs through the
site along the railroad tracks.
There also is a discharge
pipe (blow-off?) by the site's
outfall - a nearby sign
has this phone # for E-town
ECO Company (900) 756 0117

10:20 move back to field
vehicle. get cameras for
the photos. there have been
no readings as of yet on the
the above background.

10:45 go back to lagoon end area
for photos

Ref. No. 5, p. 8 of 32

Photo Log

1. View looking northeast along the railroad tracks, from the site NTPDES outfall at an upgradient intermittent (?) stream. (11:01 am)
2. Photo of the discharge from a drainage pipe (storm water?) reportedly draining from GAF Corp, north of CPE site NTPDES outfall. (11:04)
3. View of the site NTPDES permitted outfall at the north end of the South Branch Creek (11:05)
4. Photo of the abandoned pipe associated with C-town Water Co. line (11:05)
5. Photo taken east at the opens of the South Branch Creek and Avenue D Bridge from the site railroad bridge. (11:07)

see
intentionally
left blank
12/11/94

[Signature]
12/11/94

[Signature]
12/11/94

Ref. No. 5, p. 9 of 32

F

6. Photo looking west at the origin of the SBC and the sites railroad bridge from Ave. B. (11:17)
^{to South Branch Creek}

7. View of downstream (SE) at the SBC from the northern edge of Avenue B and the CCP property (11:24).

8. Photo looking downstream (SE) at the SBC from site monitoring well P-2. (11:37)

9. Photo looking upstream (NW) along the SBC from site MW P-2. (11:38)

10. Photo of one of the sites new MUX located adjacent to site MW P-2 (11:42)

11. Photo ^{exc. 11/4/94} looking SE at the SBC and MW P-2. Note: pipeline bridge from Northville Industries, which crosses the SBC before it empties into the Collier Hill (11:51)

Don Mills
 12/1/94

Ref. No. 5, p. 10 of 32

Don Mills
 12/1/94

12. Photo of stormwater pipe outfall with the SBC. Outfall is located in SW portion of site. (12:08)

13. View looking east along SBC @ the Portland Industries pipeline bridge from the SW portion of site adjacent to the storm WQ outfall pipe from Photo 12. (12:11)

14. View looking NW of the Pine Sludge Lagoon (BSL) (12:22)

15. View looking SE at the BSL (12:35)

All photos were taken by Jim Hojag.

- There wasn't an engineered line, ditch, non-runoff collection system associated with the Pine Sludge Lagoon noted.

Ref. No. 5, p. 11 of 32

10

1240 move back to decom.

There were no readings above background on the ~~ANU~~.

There are no schools, daycare centers, residences located within 200 feet of the site property.

1256 leave site

[Signature]
12/14/94

[Signature]
12/14/94

Ref. No. 5, p. 12 of 32

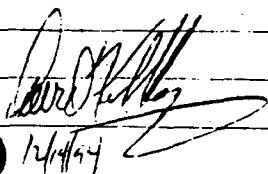
101690

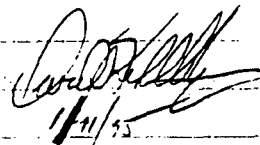
11

LCP Chemicals

ST Supply Cont

January 11, 1995


1/11/95


1/11/95

Ref. No. 5, p. 13 of 32

12

0700 arrive at site

weather is cold ($\sim 30-35^{\circ}\text{F}$)

snow flurries

0715 L.G. conducts site H+S meeting

Field team: (OK)

D. Koblentz - Site Manager

V. Smith (V.S.) - sample manager

L. Grocco (L.G.) - H+S officer

J.H. Jang (J.J.) - sampler

B. Preme (B.P.) - sampler

0720 set up decon area

L.G. calibration by vapor analogy

0733 meet with Karl Pave, U.P.

0735 move to Northville Industries property

0745 arrive at Northville, signed move to SWISD 9+10 locations

[Signature]
1/14/95

[Signature]
1/14/95

Ref. No. 5, p. 14 of 32

13

0757 arrive at SW/SED 10 sample location. Sample is located 50 feet prior to the confluence of the SBC with the Arthur Kill

0801 TJ begins collecting SW/10 sample (photo)
no readings above background on Hg by analysis

0805 BP begins collecting SED 10 sample (photo) sediment is a brown silty mud with organic matter.

It should be noted that sampling began and will continue as the tide is moving from high to low tide.

David Kelly
11/1/81

Ref. No. 5, p. 15 of 32

0814 arrive at SW/SE 9 sample location. Sample is located 20 feet north and upstream of the Northville Industries Pipeline bridge over the South Branch Creek.

0820 JT begins collecting SW 9 sample. (photo) J
no readings on H/LP analyzer

0826 BP begins collecting SE 9 sample (photo)

Sediment is brown silty
muck w/ some organic matter

0831 BP finishes collecting SE 9 sample - move to SW 6, 7/SE 6, 7 sample location

David H. Kelly
11/1/85

David H. Kelly
11/1/85

Ref. No. 5, p. 16 of 32

15

0842 arrive at SW6,7/SED 6,7 (A.P.)
sample location

0846 JT begins collecting SW6,7
samples (photo)

It should be noted that the
sample had to be collected with
a shovel due to low flow
for the BNAE + metals
fractions.

0852 BP begins collecting
SED 6,7 samples (A.P.)

Sediment is dark brown
and is significantly black
silty, mucky, organic
(photo)

SW6,7/SED 6,7 samples ^{are} located 75
feet north and upstream from the
Northville Pipeline bridge.

Ref. No. 5, p. 17 of 32

16

all of the samples
SW 6, 7, 9, 10; SED 6, 7, 9, 10
were collected along the
western bank of the South
Branch creek.

0906 finish collecting SED 6, 7 samples
move back to River area.

- Drop off samples

0920 move to SW/SED 8 sample
location.

0937 arrive at SW/SED 8 sample location
surface water is flowing from
the sewer outfall pipe.
will collect SW sample.

The sediment in the area is all large
pebbles and gravel - as no
pebbles are present, only
sw (NO SED sample) will
be collected.

[Signature]
10/1/91

[Signature]
10/1/91

Ref. No. 5, p. 18 of 32

due to the low flow from the
outfall pipe and accessibility
the surface water sample
will be collected with
a trowel.

0946 JT begins collecting SWS
sample (photo)
no readings above background
on 1g Vap Analyzer.

0951 move to SWS sample location.

0953 arrive at ^{best} SWS sample
samples are located immediately
downslope of MW P-3

0959 JT begins collecting
SWS sample

-Due to the low flow and
shallow creek flow

Ref. No. 5, p. 19 of 32 *David Hill*
5/11/95

18

the BNAE + metals samples
will be collected with
a trowel. (Photo-Sample
collection)

no readings H₂ vapor.

1027 JT finishes collecting SW5

1028 BP begins collecting SW5
sediment as shown, silty
muck - organic + a little
rocky. (photo)

— no readings on H₂ vapor
analyzer

move to SW/SD 2-4 locations

David H. H.
1/1/95

Ref. No. 5, p. 20 of 32

19

arrive at SW/SE 2 location
water is flowing from the
stormwater outfall pipe (SAF)

10:54 JT begins collecting SWZ
sample. water is
colored (stained?) a
reddish-yellow (photo)

BAAC + metals fractions
collected with towel dusts
Shallow-ness of creek bed

- no sed sample will be
collected due to the lack
of its presence

11:15 JT finishes collecting SWZ sample

Ref. No. 5, p. 21 of 32

26

move to SW/553 location

1118 BP began collecting SW3
sample from JCP outfall
pipe

water is not flowing from the
outfall pipe, however
the sample was collected
at the ~~outfall~~ pipe's ^{outfall} discharge
point. ~~11/1/95~~

point. with the South Branch
creek.

- Due to low flow / SHANNON creek bed
~~11/1/95~~ ^{OSR} BNAE / metals fractions
collected with a trowel.

(photo)

[Signature]
11/1/95

[Signature]
11/1/95

Ref. No. 5, p. 22 of 32

21

1127 BP begins collecting SED3 sample. (photo)

Sediment is black, silty, very organic, slight odor from SED3 sample.

move to SW/SED 4 sample location.

water is flowing from the Chubbethouse water Co. flow off pipe, area is stained orange - possibly from iron in pipes cut up in area? no runoff path from the pipe.

→ JT begins collecting SW4 sample (photo)

1148

BP begins collecting SED4 sample

no readings on Hg/Vapor.

(photo)

Don Kelly

Ref. NO. 5, p. 23 of 32

22

sediments ~~very~~ silty
on top then lower layer
is brown, silty, organic as
all other SED samples.

1200 move to second parcel
back track

1258 move to SW/SED 1 sample
location

1330 TJ begins collecting SW/
sample (photo)

sample were collected with a trowel
for SWAC/metals fractions due to
shallow/iced over conditions

move to SED location

1342 BF begins collecting SED 1
sample. (photo)

Ref. No. 5, p. 24 of 32

[Signature]
11/11/15

23

Red 1 sample is located 224' and
22 feet from SW1 sample

Note: SW/SE samples were collected
from a finger/loop over wetland
area located 350' north
of the site, following the
railroad tracks, and east of
the tracks from the SW2
sample

move to SL2, SL3
sample locations.

1403 arrive at SL3 soil sample
location.

1404 JT begins collecting SL3
soil sample (photo)

Ref. No. 5, p. 25 of 32 *1/1/5*

24

soil is a dark brown - humus
SL3 sample is located 12 feet
North east of site MW P-1A

~~find~~ SL3 soil sample
move to SL2 sample location

1427 BP begins collecting
soil sample SL2 (photo)
soil is a brown humus
type soil - organic
sample is located 30' NE
of MW P-2

no readings above
background on H/L floor.

~~move back to dec~~

Ref. No. 5, p. 26 of 32

David Hall
11/15

25

1445 arrived SL1 soil
sample location

1455 JJ begins collecting SL1
soil sample. (photo)

soil is similar to SL2+SL3
except it has more pebbles.

sample (SL1) is located 268'
at 224° to the access
road to site and site
guard shack

Note: all soil samples (SL1-SL3)
were collected between
0-6" depth.

Ref. No. 5, p. 27 of 32

David Kelly
10/1/5

26

- move back to where
finished sampling, prepare
for FED SHIPMENTS of
SAMPLES to leave site.

^{all} Sample Equipment ^{was} decontaminated
by Lissano Labs

Bowl 12/8/94 1:00 pm Lot No 1AA088
Trowel 12/6/94 1:00 pm Lot No 1AA087
Shovel 12/6/94 1:00 pm " 1AA087

SW samples 1-3, 5-8 were
all collected with a trowel for
BNAE/AST/PCB/metals fractions.

David Shelly
11/1/95
Ref. No. 5, p. 28 of 32

27

^{1/15}
~~The Brine Sludge Lager did not appear to be ^{filled}~~

The BSC ~~BSL~~ did not appear to be lined; did not have an engineered dike or leachate collection system.

There were no readings above background on the Hg vapor analyzer during the SI sample went

- There were ^{no} workers at the site - it was abandoned

- leave site for Fed EX

[Signature]
1/15

Ref. No. 5, p. 29 of 32

LCP Chemicals

(38)

830: Today is October 11, 1996

Andy Clibanoff + myself (Steve McNulty) are at the LCP S. 12 to measure the frontage of wetlands along the creek bordering the lagoon @ the LCP side.

The wetlands begin immediately downstream of the dirt/gravel road bridge that crosses the creek to the northwest of the lagoon area.

There are wetlands continuous along the creek all the way down to the Anthonville we measured 550 feet of wetlands bordering the lagoon.

0930: Finish Recon Leave Site

Steve T. McNulty 10/12/96
Ref. No. 5, p. 30 of 32

LCP Chemicals

(29)

1400 Today is November 14, 1996

We are out here to observe
some of the locations sampled
during the 1995 sampling
event. The following Malcolm
Pirie, Inc. personnel are present:

Lisa Greco Site Manager
Steve McNulty Field Helper

The weather today is cool (in
40 - 50 °F) and overcast

1405 We arrive at the location of the
SW4 sample. This sample is
described as being collected
from the Elizabethtown Company
flow off pipe. This pipe was a
former drinking water transmission
supply line that was abandoned.

LJG 11/18/96

Ref. No. 5, p. 31 of 32

1405 The pipe was then cut
(cont) open at the stream as
well as other unknown
bodies of water in order
to allow the water within
the pipe to drain freely into
the creek

1415 Steve and I arrive at the location
of SW/SED1 collected during the
1995 Site Characterization. The soil at
this sample location consists of
a dark brown ^{sed 11/18/96} silty mud
with a lot of organic matter

It should be noted that the
flow of the SBC appears to be
greater than 10 cfs and
less than 100 cfs

1440 Finish Recon and leave site

11/18/96

Ref. No. 5, p. 32 of 32

REFERENCE NO. 6

101711

FINAL DRAFT
SITE INSPECTION
LCP CHEMICALS, INC.
LINDEN, UNION COUNTY, NEW JERSEY
PREPARED UNDER

WORK ASSIGNMENT NO. 038-2JZZ
CONTRACT NO. 88-W9-0051

JUNE 16, 1995
UPDATED: JULY 24, 1995

VOLUME 1 of 4

SUBMITTED BY:


DAVID S. KAHLBERG
SITE MANAGER


STEVEN T. MCNULTY
TASK LEADER


JOHN L. SPLENDORE, P.E.
WORK ASSIGNMENT MANAGER

SITE SUMMARY

The LCP Chemicals (LCP) site is situated on the Tremley Point Peninsula adjacent to the Arthur Kill, in Linden, Union County, New Jersey. The site is located in an industrial area and is bordered by the South Branch Creek (SBC) to the east, the General Aniline and Film Corporation (GAF) to the north, and Northville Industries, BP Corporation, and Mobil to the northeast, south and west, respectively. Figures 1 and 2 present a Site Location and Sample Location Map (Site Map), respectively.

LCP purchased the 26 acre chlorine production facility in 1972 from GAF who had owned the facility since 1942. E.I. Dupont owned the land, which according to aerial photographs, was coastal marshland prior to 1942. GAF began producing chlorine in 1961 by utilizing a mercury cell electrolysis process. This process involved the electrolysis of a sodium chloride (brine) solution in the presence of metallic mercury. The residual mercury-sodium solution was then used to hydrolyze water forming sodium hydroxide and hydrogen gas. The metallic mercury was partially recovered and recycled in a brine purification process. The remaining mercury tainted sludge was placed into the Brine Sludge Lagoon (BSL). As part of LCP operation of the BSL, lagoon supernatant was collected in a sump located in the southeastern corner of the lagoon, and piped to the site wastewater treatment system for treatment prior to being discharged to the SBC via the site's New Jersey Pollutant Discharge Elimination System (NJPDES) Permit. When LCP purchased the site they continued using the same chlorine processing method with a few minor modifications.

Overflows of supernatant from the BSL to the SBC were observed by the New Jersey Department of Environmental Protection (NJDEP) on October 30, 1972 and February 7, 1974. The overflow locations, quantities, and nature of LCP's responses are unknown. In June 1975, a brine recycle pump failed, causing a breach in the BSL to occur. An undetermined quantity of brine entered the SBC for a nine hour period. The location of the release was reported to be likely near the southeastern corner of the lagoon.

In 1976, LCP investigated ways to clean the BSL and remove the mercury wastes that were being deposited.

Ref No 6, p. 2 of 47

LCP contracted Chem-fix of Pittsburgh to construct a lined Chem-fix lagoon at the site to receive non-contaminated wastes. LCP operated the Chem-fix lagoon for six days during which time the lagoon received approximately 460 cubic yards (yd³) of treated brine sludge. Since it was determined that the lagoon was not a practical means of remediation, it was closed in 1983. The contents of the Chem-fix lagoon were excavated and placed into the BSL and it was subsequently backfilled, graded and seeded.

A release of 10,000 to 20,000 gallons of brine to the SBC occurred on August 20, 1979 due to sodium chloride blockage in the saturator. A brine sample was collected and analyzed at the time of the release and was determined to contain 8.3 parts per million (ppm) of mercury. The breach was reported to be subsequently remediated.

An Administrative Consent Order (ACO) was issued in 1981 which required the closure of the BSL. The BSL is a surface impoundment which is roughly the shape of a trapezoid. The lagoon was reportedly sprayed with hot tar to act as a liner at the time of its construction. The total volume of sludge in the BSL is estimated to be 30,900 cubic yards (yd³). This sludge accumulated for more than twenty years before the lagoon was closed in 1984. Closure plans for the lagoons (BSL and Chemi-fix lagoon) were approved on November 7, 1983. During the closure of the lagoons, LCP closed their production facilities in order to eliminate employee exposure to mercury. As part of the closure of the BSL, it was dewatered, compacted, and capped with a two foot layer of clay. The closure of the lagoons was completed in 1984. LCP was also required to implement a monitoring program to evaluate the release of mercury and other metals to the environment. LCP installed monitoring wells to determine if there was any impact from the BSL on area groundwater. These wells were monitored quarterly for total organic carbon (TOC), phenols, dissolved metals, total organic halogens (TOX), and selected inorganic constituents. Several quarterly reports from 1982-1987 indicate that the concentrations of lead, chromium, cadmium, mercury, silver, and selenium exceeded the NJPDES permitted levels. The data quality associated with this sampling is unknown.

A February 1982 report entitled, "Waste Lagoon Groundwater Monitoring" (WLGM) indicates that soil samples

Ref No 6, p. 3 of 47

were collected at six inch intervals during the installation of the site's monitoring wells and were analyzed by LCP for mercury. Analytical results of these samples indicated mercury concentrations ranging from 35.71 parts per million (ppm) to 772 ppm in the 0-2 foot interval with mercury concentrations generally decreasing with depth; mercury concentrations detected at depths of 40-47 feet ranged from 0.60 ppm to 4.59 ppm. Surface soil samples collected from the perimeter of the BSL indicated mercury levels ranging from 27.45 ppm to 1,580 ppm. In addition, analytical results of a sediment sample collected from the SBC creek bed, downstream of the BSL, indicated the presence of mercury at a level of 46.42 ppm. The data quality associated with this sampling is unknown.

In June 1984, LCP submitted a facility closure plan to the NJDEP. This closure was completed in 1985 and included the complete closure of all production areas. After the 1985 facility closure, the site continued to operate as a storage and transfer station for hydrochloric acid, sodium hydroxide, potassium hydroxide, and methylene chloride that was produced at other LCP facilities. Dismantling activities have been ongoing since the facility's closure. Other products produced by LCP included caustic soda, hydrochloric acid, and bleach. In addition, stormwater collects in drainage swales surrounding the former process area and is routed to a concrete sump south of site building number 231. Runoff is piped to holding tanks outside site building number 233 and is pH adjusted, filtered, treated and stored pending discharge to the SBC in accordance with the site's NJPDES Permit.

On September 27, 1984, an EPA contractor conducted a Site Inspection (SI) at the LCP site which included the collection of three groundwater, two surface water, two sediment and two soil samples. Analytical results of the groundwater samples indicated the presence of inorganic constituents (ie. arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, and zinc), however, the significance of the constituent levels remains inconclusive due to the lack of an adequate background sample. Surface water and sediment sample results indicated the presence of cadmium, copper, lead, and mercury at levels exceeding three times background levels, however, since the samples were collected in reverse order (ie. upstream to downstream), an observed release cannot be scored due to the potential for interferences. In addition, a

Ref No 6, p. 4 of 47

sufficient number of surface water/sediment samples were not collected from the tidally-influenced SBC to identify whether any of the substances detected are attributable to potential downstream sources. Analytical results of the soil samples were not conclusive as a background sample was not collected. All of the analytical data from the EPA SI were generated by the EPA Contract Laboratory Program (CLP) and were subjected to all applicable Region II data validation criteria.

On December 14, 1994, an EPA contractor conducted an on-site reconnaissance of the LCP site. During this reconnaissance it was noted that all site storage/transfer activities had ceased and that all of the mercury cells and other production equipment had been removed from the site as all of the production buildings were vacant.

On January 11, 1995, an EPA contractor conducted a site inspection (SI) sampling event at the LCP site. As part of this SI sampling event three surficial soil samples, ten surface water and eight sediment samples were collected at the site. Analytical results of the surficial soil samples (MBKW78(SL2)/MBKW79(SL3)) collected downslope of the BSL indicated the presence of mercury (98,900 micrograms per kilogram ($\mu\text{g}/\text{kg}$) to 110,000 $\mu\text{g}/\text{kg}$), lead (304,000 $\mu\text{g}/\text{kg}$), and zinc (833,000 $\mu\text{g}/\text{kg}$) at levels greater than three times the levels found in background surficial soil sample MBKW74 (SL1). Analytical results of the surface water/sediment samples documented that an observed release of mercury had occurred from the site to the surface water pathway. In addition, the analytical results of the surface water/sediment samples identified a zone of actual contamination which contains 0.43 miles of wetlands frontage and a state designated area for the maintenance and protection of aquatic life. All of the analytical data from the 1995 EPA SI were generated by the EPA CLP and were subjected to all applicable Region II data validation criteria.

Groundwater has not been identified as a source of drinking water within four miles of the site. The residential population in the site's vicinity relies primarily on surface water as a source for potable water. The water is drawn from surface water intakes that are not located along the site's surface water pathway.

Ref 126, p. 5 of 47

The SBC flows southeast 0.31 miles before discharging into the Arthur Kill which then flows south for 9.99 miles where it empties into the Raritan Bay. All of the surface water bodies located along the site's surface water pathway are tidally influenced. The Arthur Kill and Raritan Bay have been identified as fisheries. There are no residences, schools, daycare centers, or terrestrial sensitive environments identified within 200 feet of the site property. There is no documentation available to indicate that an observed release of contaminants has occurred from the site to air.

Rf No. 6, p. 6 of 47

SITE ASSESSMENT REPORT: SITE INSPECTION

PART I: SITE INFORMATION

1. Site Name/Alias: LCP Chemicals, Inc.

Street South Wood Avenue

City Linden State New Jersey Zip 07036

2. County Union County Code 013 Cong. Dist.

3. CERCLIS ID NO. NJD079303020

4. Block No. 587 Lot No. 3

5. Latitude 40°36'27"N Longitude 74°12'37"W

USGS Quad. Arthur Kill, New York - New Jersey

6. Approximate size of site 26 acres

7. Owner Hanlin Group, Inc. Telephone No. (908) 862-1666

Street South Wood Avenue

City Linden State New Jersey Zip 07036

8. Operator LCP Chemicals, Inc. Telephone No. (908) 862-1666

Street South Wood Avenue

City Linden State New Jersey Zip 07036

9. Type of Ownership

☒ Private ☐ Federal ☐ State
☐ County ☐ Municipal ☐ Unknown ☐ Other

10. Owner/Operator Notification on File

☒ RCRA ☐ Date ☐ CERCLA 103c Date
☐ None ☐ Unknown

11. Permit Information

Permit	Permit No.	Date Issued	Expiration Date	Comments
RCRA	NJD079303020	8/13/80		RCRA Part A (hazardous waste generator)
NJPDES	NJ0003778	8/10/87	4/30/91	Discharge to Surface Water
NJPDES	NJ0003778	10/30/87	11/29/92	Discharge to Ground Water
APC	044133	3/3/80	10/5/82	Air Pollution Control (Sludge Roaster System)
Air Permit	067418		2/17/89	Boiler Stack
Air Permit	020928		11/9/85	Pura-SIV stack
Air Permit	037033		3/26/89	Mercury Cell Destruct Tower
Air Permit	040435		3/26/88	Mercury Cell Destruct Tower
Air Permit	076056		5/15/87	Mercury Cell Destruct Tower
Air Permit	036994		6/11/88	HCL Scrubber
Air Permit	036993		11/20/88	HCL Scrubber
Air Permit	035067		3/28/88	HCL Scrubber

12. Site Status

☐ Active ☒ Inactive ☐ Unknown

13. Years of Operation: 1950 to 1985

14. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1	<u>Lagoon</u>	<u>Brine Sludge Lagoon</u>
2	<u>Contaminated Soil</u>	<u>Contaminated Soil</u>
3	<u>Other</u>	<u>Brine Sludge Spill</u>

(b) Other Areas of Concern

Identify any miscellaneous spills, dumping, etc. on site; describe the materials and identify their locations on site.

The following areas were identified as areas of concern or areas where hazardous waste generation, treatment, storage, and disposal occurred at the site according to the 1992 RCRA Facility Investigation of the LCP Chemical site: Chem Fix Lagoon, Salt Silo No. 4, Process Areas in Buildings 230 and 240, 500 K Tank, Bullet Tanks, Area South of Building 231, Drum Storage Area, Lined Trenches, Transformers, Process Sewers, Building 233, Brine Sludge Roaster, and GAF Wastewater Treatment Area.

Ref. Nos. 1; 10, pp. 7-17, 20, 28-30; 15, pp. 21-29, 49-55, 59-61

15. Information available from

Contact Joseph Hudek Agency U.S. EPA Telephone No.: (908) 321-6717
Preparer David Kahlenberg Agency MALCOLM PIRNIE, INC. Date: July 24, 1995

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 - Brine Sludge Lagoon

Source Type

<input type="checkbox"/> Landfill	<input type="checkbox"/> Contaminated Soil
<input checked="" type="checkbox"/> Surface Impoundment	<input type="checkbox"/> Pile
<input type="checkbox"/> Drums	<input type="checkbox"/> Land Treatment
<input type="checkbox"/> Tanks/Containers	<input type="checkbox"/> Other

Description:

LCP utilized a mercury cell electrolysis process to produce chlorine. This process involved the electrolysis of a sodium chloride (brine) solution in the presence of metallic mercury. The residual mercury-sodium solution was then used to hydrolyze water forming sodium hydroxide and hydrogen gas. The metallic mercury was partially recovered and recycled in a brine purification process. The remaining mercury tainted sludge was placed into the BSL.

The BSL is a surface impoundment which is roughly the shape of a trapezoid. The lagoon was reportedly sprayed with hot tar to act as a liner at the time of its construction. Closure plans for the lagoon were approved on November 7, 1983. As part of the closure of the BSL, it was dewatered, compacted, and capped with a two foot layer of clay. The closure of the lagoon was completed in 1984.

Hazardous Waste Quantity

The BSL is an unlined surface impoundment containing 30,900 yd³ of dewatered sludge.

Hazardous Substances/Physical State

The hazardous substance associated with the BSL is mercury which was deposited in a sludge state.

Ref. Nos. 10, pp. 7, 12-14; 13, pp. 4, 7, 12, 17-18; 14, pp. 1-7; 15, pp. 6, 9-10, 21, 24-25, 49-53, 107-116, 195-198, 279, 321

Ref 10, p. 90F47

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 2 - Contaminated Soil

Source Type

<input type="checkbox"/> Landfill	<input checked="" type="checkbox"/> Contaminated Soil
<input type="checkbox"/> Surface Impoundment	<input type="checkbox"/> Pile
<input type="checkbox"/> Drums	<input type="checkbox"/> Land Treatment
<input type="checkbox"/> Tanks/Containers	<input type="checkbox"/> Other

Description:

On January 11, 1995, an EPA contractor conducted a SI sampling event at the LCP site. As part of this SI sampling event three surficial soil samples were collected at the site. Analytical results of the surficial soil samples (MBKW78(SL2)/MBKW79(SL3)) collected at the site indicated the presence of mercury (98,900 $\mu\text{g}/\text{kg}$ to 110,000 $\mu\text{g}/\text{kg}$), lead (304,000 $\mu\text{g}/\text{kg}$), and zinc (833,000 $\mu\text{g}/\text{kg}$) at levels greater than three times the levels found in background surficial soil sample MBKW74 (SL1).

Hazardous Waste Quantity

The area of contaminated soil is greater than zero square feet in size.

Hazardous Substances/Physical State

The hazardous substances are present in a solid state and consist of lead, mercury, and zinc.

Ref. Nos. 16, pp. 5, 7; 17, pp. 4, 66-68; 18; 19

Ref No 6, p. 10 of 47

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 3 - Brine Sludge Spill

Source Type

<input type="checkbox"/> Landfill	<input type="checkbox"/> Contaminated Soil
<input type="checkbox"/> Surface Impoundment	<input type="checkbox"/> Pile
<input type="checkbox"/> Drums	<input type="checkbox"/> Land Treatment
<input type="checkbox"/> Tanks/Containers	<input checked="" type="checkbox"/> Other

Description:

On August 15, 1979, a sodium chloride pluggage occurred in the facilities east saturator. This caused sodium chloride contaminated with inorganic mercury to overflow the top of the saturator. The surge of flow exceeded the surge capacity of the wastewater system. This caused an estimated 10,000 to 20,000 gallons of the brine to flow into South Branch Creek. Chemical analysis of a sample collected from the spill indicated mercury concentrations to be 8.6 ppm.

Hazardous Waste Quantity

A spill of approximately 10,000 gallons of mercury tainted sludge.

Hazardous Substances/Physical State

The hazardous substance present in the spill was mercury in a sludge state.

Ref. No. 15, pp. 16, 195-198

Ref No 6, p. 11 of 47

101722

PART III. SAMPLING RESULTS

A release of 10,000 to 20,000 gallons of brine to the SBC occurred on August 20, 1979 due to sodium chloride blockage in the saturator. A brine sample was collected and analyzed at the time of the release and was determined to contain 8.3 parts per million (ppm) of mercury (Ref. No. 15, pp. 16, 195-198). The breach was reported to be subsequently remediated (Ref. No. 15, p. 16).

On January 11, 1995, an EPA contractor conducted a SI sampling event at the LCP site (Ref. Nos. 16-19; 22). As part of this SI sampling event three surficial soil samples, ten surface water samples and eight sediment samples were collected at the site. Analytical results of the surficial soil samples (MBKW78(SL2)/MBKW79(SL3)) collected at the site indicated the presence of mercury (98,900 $\mu\text{g/kg}$ to 110,000 $\mu\text{g/kg}$), lead (304,000 $\mu\text{g/kg}$), and zinc (833,000 $\mu\text{g/kg}$) at levels greater than three times the levels found in background surficial soil sample MBKW74 (SL1) (Ref. Nos. 16, pp. 5, 7; 17, pp. 4, 66-68; 18; 19; 22, pp. 1-13). Table 1 on the following page summarizes the surface water/sediment sampling results for the samples collected from the tidally influenced South Branch Creek, while Table 2 summarizes the surficial soil sample results. It should be noted that the MBKW54/MBKW64 (SW1/SED1) samples were collected beyond the head of tidal influence of the South Branch Creek (Ref. Nos. 19; 20). All of the analytical data from the 1995 EPA SI were generated by the EPA CLP and were subjected to all applicable Region II data validation criteria (Ref. Nos. 17, pp. 5-42; 22, pp. 14-39, 112-117).

Several other sampling events have occurred at the LCP site, however, only the sampling events presented in this section will be utilized in the evaluation of the site score.

Ref No 6, p. 12 of 47

Table 1: Surface Water/Sediment Sampling Mercury Results

General Sample Location	Sample Number	Sample Type	Mercury Concentration	Reference(s)
Upstream Background	MBKW54 (SW1)	surface water	1.2 µg/L	16, pp. 3, 7; 17, pp. 2, 43
	MBKW64 (SED1)	sediment	8,800 E µg/kg	16, pp. 4, 7; 17, pp. 3, 8, 58; 18
At LCP Outfall	MBKW56 (SW3)	surface water	93 µg/L	16, pp. 3, 7; 17, pp. 2, 45
	MBKW66 (SED3)	sediment	1,060,000 E µg/kg	16, pp. 4, 7; 17, pp. 3, 8, 59; 18
Adjacent to BSL	MBKW58 (SW5)	surface water	44.6 µg/L	16, pp. 3, 7; 17, pp. 2, 47
	MBKW68 (SED5)	sediment	187,000 µg/kg	16, pp. 4, 7; 17, pp. 3, 61
Downstream of BSL	MBKW59 (SW6)	surface water	65.3 µg/L	16, pp. 3, 7; 17, pp. 2, 48
	MBKW60 (SW7)	surface water	60.2 µg/L	16, pp. 3, 7; 17, pp. 2, 49
	MBKW62 (SW9)	surface water	2 µg/L	16, pp. 4, 7; 17, pp. 2, 51
	MBKW69 (SED6)	sediment	350,000 E µg/kg	16, pp. 4, 7; 17, pp. 3, 8, 62; 18
	MBKW70 (SED7)	sediment	470,000 E µg/kg	16, pp. 4, 7; 17, pp. 3, 8, 63; 18
	MBKW72 (SED9)	sediment	433,000 E µg/kg	16, pp. 5, 7; 17, pp. 3, 8, 64; 18
Downstream Background	MBKW63 (SW10)	surface water	3.7 µg/L	16, pp. 4, 7; 17, pp. 2, 52
	MBKW73 (SED10)	sediment	56,900 E µg/kg	16, pp. 5, 7; 17, pp. 3, 8, 65; 18

Note: The above sampling results are from the 1995 EPA Site Inspection.

µg/L : micrograms per liter
µg/kg: micrograms per kilogram

Ref No 6, p. 13 of 97

Table 2: Surface Soil Sampling Results

General Sample Location	Constituent Detected	Sample Number	Sample Type	Sample Depth (feet)	Concentration	References
Background	Lead	MBKW74 (SL1)	Soil	0 - 0.5	63,100 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 66
	Mercury	MBKW74 (SL1)	Soil	0 - 0.5	26,500 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 66
	Zinc	MBKW74 (SL1)	Soil	0 - 0.5	196,000 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 66
On-Site	Lead	MBKW78 (SL2)	Soil	0 - 0.5	304,000 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 67; 18
	Mercury	MBKW78 (SL2)	Soil	0 - 0.5	110,000 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 67
	Mercury	MBKW79 (SL3)	Soil	0 - 0.5	98,900 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 68
	Zinc	MBKW78 (SL2)	Soil	0 - 0.5	833,000 $\mu\text{g/kg}$	16, pp. 5, 7; 17, pp. 4, 67

Note: The above sampling results are from the 1995 EPA Site Inspection

$\mu\text{g/kg}$: micrograms per kilogram

Ref No 6, p. 14 of 41

PART IV. HAZARD ASSESSMENT**GROUNDWATER ROUTE**

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

A release of contaminants from the site to groundwater is not documented. Analytical results of several quarterly NJPDES reports from 1982-1987 indicate that concentrations of lead, chromium, cadmium, mercury, silver, and selenium have exceeded the NJPDES permitted levels. It should be noted that there is a lack of QA/QC information regarding the data quality associated with the abovementioned analytical results. In 1984, as part of an EPA SI at the LCP site, three groundwater samples were collected. Analytical results of these samples indicated the presence of inorganic constituents (i.e. arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, and zinc), however, the significance of the constituent levels remains inconclusive due to the lack of an adequate background sample to account for the site's tidal influences. Therefore, an observed release of contaminants from the site to the groundwater has not been documented, but is suspected.

Ref. Nos. 10, pp. 10, 13; 13, pp. 25, 81-102

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.

A layer of unconsolidated fill consisting of silts, sands, gravel, crushed stone and brick comprises the first 10 to 15 feet below the site surface. The hydraulic conductivity associated with this unit is approximately 10^{-6} centimeters per second (cm/sec). A dark grey clay layer underlies the unconsolidated deposits for approximately 25 to 35 feet before reaching the bedrock. The hydraulic conductivity associated with this unit is approximately 10^{-8} cm/sec. The red-brown shale bedrock at the site exists at a depth of approximately 40-50 feet. The hydraulic conductivity associated with the bedrock is approximately 10^{-8} cm/sec. The water table is five to ten feet below grade and the groundwater is brackish due to the tidal influence from the surrounding water bodies.

Ref. Nos. 9; 10, pp. 9-12; 12, pp. 5, 12-16, 25-31; 13, pp. 25, 77, 81-102; 15, pp. 12-13

3. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

The lowest point of waste disposal is assumed to be between 0-0.5 feet below the site's natural ground elevation based upon the surficial soil samples collected during the 1995 EPA SI. The depth to groundwater at the site is approximately 5 feet. Therefore, the depth from the lowest point of waste disposal to the highest seasonal level of the saturated zone would be 4.5 feet.

Ref. Nos. 10, pp. 9-12; 12, pp. 5, 12-16, 25-31; 13, pp. 25, 77, 81-102; 15, pp. 12-13; 16, p. 5

4. What is the distance to and depth of the nearest well that is currently used for drinking purposes?

Groundwater is not utilized as a source of potable water within 4-miles of the site.

Ref. No. 4

Ref No 6, p. 15 of 4.

5. If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be located within the contamination boundary of the release.

A release of contaminants from the site to groundwater is not documented.

Ref. Nos. 4; 10, pp. 10, 13; 13, pp. 25, 81-102

6. Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.

<u>Distance</u>	<u>Population</u>
0 - ¼ mi	0
> ¼ - ½ mi	0
> ½ - 1 mi	0
> 1 - 2 mi	0
> 2 - 3 mi	0
> 3 - 4 mi	0

Ref. No. 4

State whether groundwater is blended with surface water, groundwater, or both before distribution.

Groundwater is not blended with surface water prior to distribution within four miles of the site. Surface water is the primary source for potable water within four miles of the site.

Ref. No. 4

Is a designated well head protection area within 4 miles of the site?

There have been no New York or New Jersey designated Wellhead Protection Areas identified within four miles of the LCP site.

Ref. No. 6

Does a waste source overlap a designated or proposed wellhead protection area? If a release to groundwater is observed or suspected, does a designated or proposed wellhead protection area lie within the contaminant boundary of the release?

There have been no New York or New Jersey designated Wellhead Protection Areas identified within four miles of the LCP site.

Ref. No. 6

7. Identify uses of groundwater within 4 miles of the site (i.e. private drinking source, municipal source, commercial, irrigation, unusable).

Although no potable wells were identified within the target distance limit, the Brunswick Formation has been identified as a potential usable source for potable water within four miles of the site.

Ref. No. 4

Ref No 6, p. 16 of 47

SURFACE WATER ROUTE

8. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence.

An observed release via direct observation to the surface water pathway was documented when a release of 10,000 to 20,000 gallons of brine to the SBC occurred on August 20, 1979 due to sodium chloride blockage in the saturator. A brine sample was collected and analyzed at the time of the release and was determined to contain 8.3 parts per million (ppm) of mercury. The breach was reported to be subsequently remediated. In addition, an observed release via chemical analysis of mercury was documented as a result of the surface water/sediment sampling of the SBC which occurred as part of a 1995 EPA contractor SI sampling event. The analytical results of the surface water/sediment sampling are summarized on Table 1.

Ref. Nos. 2; 3; 15, pp. 16, 195-198; 16-19; 22

9. Identify the nearest downslope surface water. If possible, include a description of possible surface drainage patterns from the site.

Surface water runoff from the site flows generally east towards the SBC. The SBC flows (>10 cubic feet per second (cfs)) for approximately 0.31 mile southeast before discharging into the Arthur Kill. The Arthur Kill, which is tidally influenced, flows south for 9.99 miles where it discharges into the Raritan Bay.

Ref. Nos. 2; 3; 5, p. 1

10. What is the distance in feet to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The nearest downslope water body is the South Branch Creek which is located immediately adjacent to the site.

Ref. Nos. 2; 3; 5, p. 1

11. Determine the type of floodplain that the site is located within.

The site is located within the 100-year flood plain.

Ref. No. 13, p. 12

12. Identify drinking water intakes in surface waters within 15 miles downstream of the point of surface water entry. For each intake identify: the name of the surface water body in which the intake is located, the distance in miles from the point of surface water entry, population served, and stream flow at the intake location.

There are no drinking water intakes located along the 15-mile surface water pathway.

Ref. Nos. 3; 5, pp. 1, 12-17

Ref No 6, p. 170/47

13. Identify fisheries that exist within 15 miles downstream of the point of surface water entry. For each fishery specify the following information:

<u>Fishery Name</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Saline/Fresh/Brackish</u>
Arthur Kill	Coastal Tidal Water	N.A.	Brackish
Raritan Bay	Coastal Tidal Water	N.A.	Salt

Ref. Nos. 2; 3; 5, pp. 1, 18-62

14. Identify surface water sensitive environments that exist within 15 miles of the point of surface water entry.

<u>Environment</u>	<u>Water Body Type</u>	<u>Flow (cfs)</u>	<u>Wetland Frontage</u>
Wetlands	River	> 10	0.62 miles
Wetlands	Coastal Tidal Water	N.A.	10.67 miles
State designated area for the protection of aquatic life	River	> 10	N.A.
1 Federally Endangered Species	Coastal Tidal Water	N.A.	N.A.

Ref. Nos. 3; 5, pp. 1-11; 13, pp. 79-80; 21

15. If a release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from question Nos. 12-14 that are or may be located within the contamination boundary of the release.

Intakes: None

Fisheries: None

Sensitive Environments: State designated area for the maintenance and protection of aquatic life
0.43 miles of Wetlands Frontage

Ref. Nos. 3; 5, pp. 1-11; 15, pp. 16, 195-198; 16-19; 21; 22; 23

Ref No 6, p. 18 of 47

SOIL EXPOSURE PATHWAY

16. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of observed contamination.

There are no residences, schools or daycare centers identified within 200 feet of the site property.

Ref. No. 19, p. 12

17. Determine the number of people that regularly work on or within 200 feet of observed contamination.

There are no people identified that regularly work on or within 200 feet of observed contamination. Although there are site workers at an adjacent property to the site, there is no evidence of contaminant migration to this adjacent property.

Ref. No. 19, pp. 12, 29

18. Identify terrestrial sensitive environments on or within 200 feet of observed contamination.

No terrestrial sensitive environments have been identified on or within 200 feet of the site property.

Ref. No. 13, pp. 79-80

AIR ROUTE

19. Describe the likelihood of release of contaminants to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release define the supporting analytical evidence.

A release of contaminants from the site to air has not been documented. There were no readings above background detected on an HNu photoionization detector or mercury vapor analyzer during either the on-site reconnaissance or site inspection sampling event, respectively.

Ref. No. 19, pp. 12, 29

20. Determine populations that reside within 4 miles of the site.

<u>Distance</u>	<u>Population</u>
0 - ¼ mi	13
> ¼ - ½ mi	38
> ½ - 1 mi	506
> 1 - 2 mi	10,829
> 2 - 3 mi	36,650
> 3 - 4 mi	103,624

Ref. No. 7

Ref No 6, p. 19 of 41

21. Identify sensitive environments, including wetlands and associated wetlands acreage, within 4 miles of the site.

<u>Distance</u>	<u>Wetlands Acreage</u>	<u>Sensitive Environment</u>
0 - ¼ mi	5	None Identified
> ¼ - ½ mi	1	None Identified
> ½ - 1 mi	217	1 Federally Endangered Species
> 1 - 2 mi	462	None Identified
> 2 - 3 mi	506	None Identified
> 3 - 4 mi	351	None Identified

Ref. Nos. 3; 8; 13, pp. 79-80

22. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.

A release of contaminants from the site to air is neither observed nor suspected. There were no readings above background detected on an HNu photoionization detector or mercury vapor analyzer during either the on-site reconnaissance or site inspection sampling event, respectively.

Ref. No. 19, pp. 12, 29

23. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 21, that are or may be located within the area of air contamination from the release.

A release of contaminants from the site to air is neither observed nor suspected. There were no readings above background detected on an HNu photoionization detector or mercury vapor analyzer during either the on-site reconnaissance or site inspection sampling event, respectively.

Ref. No. 19, pp. 12, 29

Ref No 6, p. 20 of 4

**This Report was conducted
under the following
USEPA Documentation Procedure**

**Guidance for Performing Site
Inspections Under CERCLA
Interim Final Publication 9345.1-05**

Ref No 6, p. 21 of 47

ATTACHMENT 1

101733

EXHIBIT A

PHOTOGRAPH LOG

**LCP CHEMICALS, INC.
LINDEN, UNION COUNTY, NEW JERSEY**

SITE RECONNAISSANCE

DECEMBER 14, 1994

Ref No. 6, p. 23 of 47

Photograph Index
LCP Chemicals, Inc.
Linden, New Jersey

December 14, 1994

All Photographs taken by Jin Ho Jang

<u>Photo No.</u>	<u>Description</u>	<u>Time</u>
1	View looking northeast along the railroad tracks, from the site's NJPDES permitted outfall, at an upgradient intermittent stream.	11:01
2	Photo of the discharge from a drainage pipe originating from GAF Corporation, north of the LCP site's NJPDES permitted outfall.	11:02
3	View of the site's NJPDES permitted outfall at the northernmost end of the South Branch Creek.	11:02
4	Photo of the abandoned pipe associated from with Elizabethtown Water Company line.	11:05
5	Photo looking east at the origins of the South Branch Creek and the Avenue B bridge from the site's railroad bridge.	11:07
6	Photo looking west at the origins of the South Branch Creek and the site's railroad bridge from Avenue B.	11:17
7	Photo looking downstream (southeast) at the South Branch Creek from the northern edge of Avenue B and the LCP property.	11:24
8	Photo looking downstream (southeast) along the South Branch Creek from site monitoring well P-2.	11:37
9	Photo looking upstream (northwest) along the South Branch Creek from site monitoring well P-2.	11:38
10	Photo of one of the site's new monitoring wells located adjacent to site monitoring well P-2.	11:42
11	Photo looking southeast at the South Branch Creek and monitoring well P-2. Note the pipeline bridge, associated with Northville Industries, which crosses the South Branch Creek before the creek discharges into the Arthur Kill.	11:51
12	Photo of a stormwater pipe outfall with the South Branch Creek. Note the outfall is located in the southwestern portion of the site.	12:08
13	View looking east along the South Branch Creek at the Northville Industries pipeline bridge from the southwestern portion of the site adjacent to the stormwater pipe outfall displayed in Photo No. 12.	12:11
14	View looking northwest of the Brine Sludge Lagoon.	12:22
15	View looking southeast of the Brine Sludge Lagoon.	12:35

Ref No 6, p. 24 of 47

101735



1.

December 14, 1994

11:01

View looking northeast along the railroad tracks, from the site's NJPDES permitted outfall, at an upgradient intermittent stream.



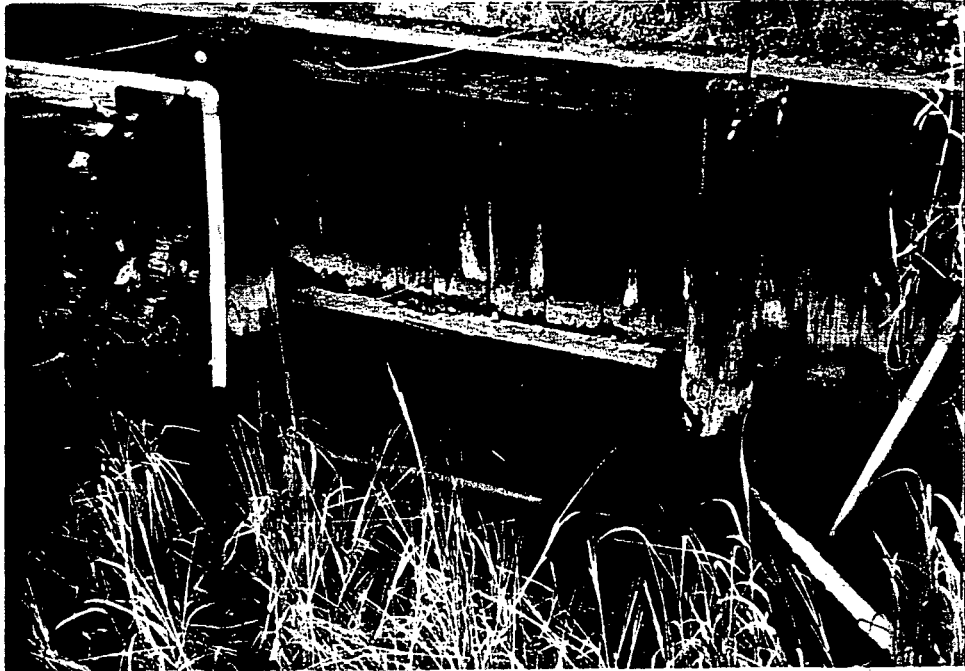
2.

December 14, 1994

10:04

Photo of the discharge from a drainage pipe originating from GAF Corporation, north of the LCP site's NJPDES permitted outfall.

Ref No 6, p. 25 of 47



3.

December 14, 1994

11:02

View of the site's NJPDES permitted outfall at the northernmost end of the South Branch Creek



4.

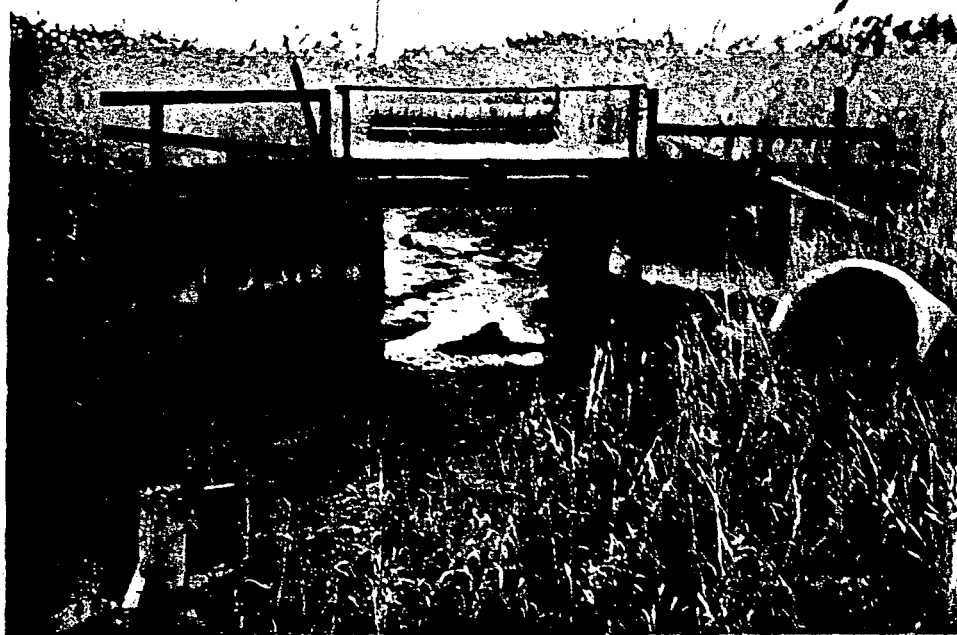
December 14, 1994

11:05

Photo of the abandoned pipe associated with Elizabethtown Water Company line.

Ref No 6, p. 26 of 4

101737



5.

December 14, 1994

11:07

Photo looking east at the origins of the South Branch Creek and the Avenue B bridge from the site's railroad bridge.



6.

December 14, 1994

11:17

Photo looking west at the origins of the South Branch Creek and the site's railroad bridge from Avenue B.

Ref No 6, p. 27 of 47



7.

December 14, 1994

11:24

Photo looking downstream (southeast) at the South Branch Creek from the northern edge of Avenue B and the LCP property.



8.

December 14, 1994

11:37

Photo looking downstream (southeast) at the South Branch Creek from site monitoring well P-2.

Ref to 6, p. 28 of 4



9.

December 14, 1994

11:38

Photo looking upstream (northwest) along the South Branch Creek from site monitoring well P-2.



10.

December 14, 1994

11:42

Photo of one of the site's new monitoring wells located adjacent to site monitoring well P-2.

Ref 12, p. 29 of 41



11.

December 14, 1994

11:51

Photo looking southeast at the South Branch Creek and monitoring well P-2. Note the pipeline bridge, associated with Northville industries, which crosses the South Branch Creek before the creek discharges into the Arthur Kill



12.

December 14, 1994

12:08

Photo of a stormwater pipe outfall with the South Branch Creek. Note the outfall is located in the southwestern portion of the site.

Ref No. 30 of 41



13.

December 14, 1994

12:11

View looking east along the South Branch Creek at the Northville Industries pipeline bridge from the southwestern portion of the site adjacent to the stormwater pipe outfall displayed in Photo No. 12.



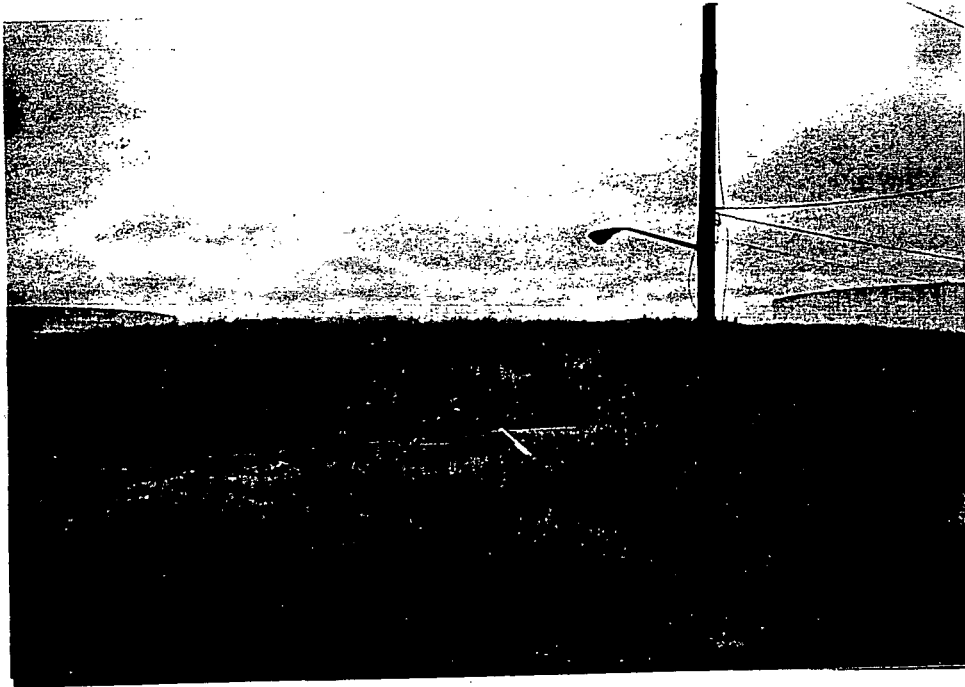
14.

December 14, 1994

12:22

View looking northwest of the Brine Sludge Lagoon.

Ref No 6, p. 31 of 47



15.

December 14, 1994
View looking southeast of the Brine Sludge Lagoon.

12:35

Ref No 6, p. 32 of 4

EXHIBIT B

PHOTOGRAPH LOG

**LCP CHEMICALS, INC.
LINDEN, UNION COUNTY, NEW JERSEY**

SITE INSPECTION SAMPLING EVENT

JANUARY 11, 1995

Ref No 6, p. 33 of 4

101744

Photograph Index
LCP Chemicals, Inc.
Linden, New Jersey

January 11, 1995

All Photographs taken by David Kahlenberg

It should be noted that all of the samples were collected on January 11, 1995, and that the placards displayed in the photos were erroneously dated January 11, 1994.

<u>Photo No.</u>	<u>Description</u>	<u>Time</u>
1	Photo of B. Pierre collecting surface water sample SW10	0801
2.	Photo of B. Pierre collecting sediment sample SED10	0805
3.	Photo of J. Jang collecting surface water sample SW9	0820
4.	Photo of J. Jang collecting sediment sample SED9	0826
5.	Photo of J. Jang collecting duplicate surface water samples SW6/SW7	0846
6.	Photo of B. Pierre collecting duplicate sediment samples SED6/SED7	0852
7.	Photo of J. Jang collecting surface water sample SW8	0946
8.	Photo of J. Jang collecting surface water sample SW5	0959
9.	Photo of J. Jang collecting sediment sample SED5	1028
10.	Photo of J. Jang collecting surface water sample SW2	1054
11.	Photo of B. Pierre collecting surface water sample SW3	1118
12.	Photo of B. Pierre collecting sediment sample SED3	1127
13.	Photo of J. Jang collecting surface water sample SW4	1127
14.	Photo of B. Pierre collecting sediment sample SED4	1148
15.	Photo of J. Jang collecting surface water sample SW1	1330
16.	Photo of B. Pierre collecting sediment sample SED1	1342
17.	Photo of J. Jang collecting soil sample SL3	1404
18.	Photo of B. Pierre collecting soil sample SL2	1427
19.	Photo of J. Jang collecting soil sample SL1	1455

Ref 126, p 34 of 4

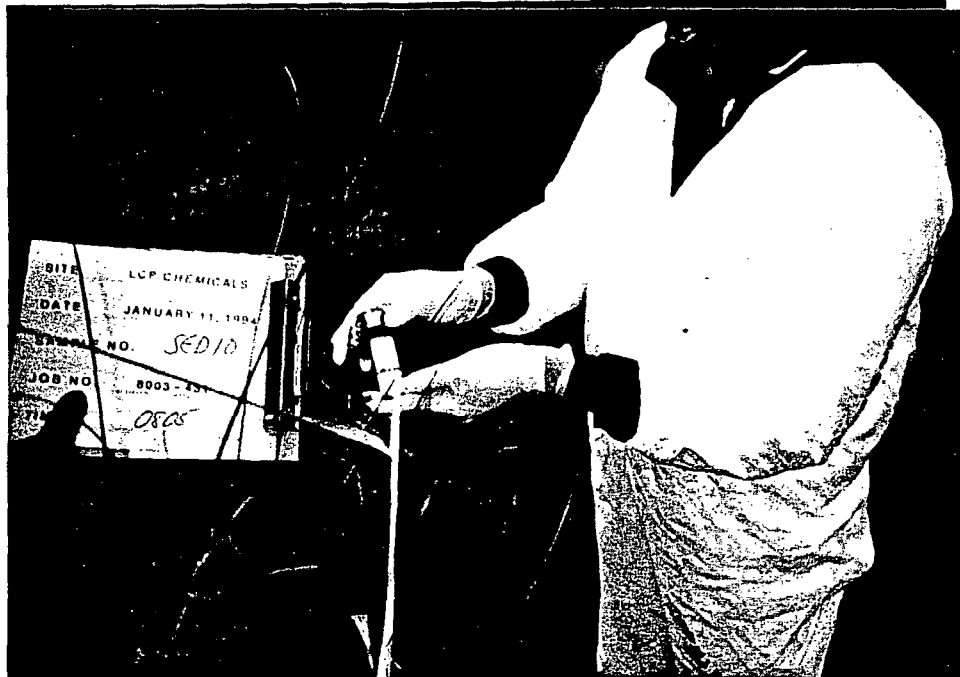


1.

January 11, 1995

08:01

Photo of B. Pierre collecting surface water sample SW10.



2.

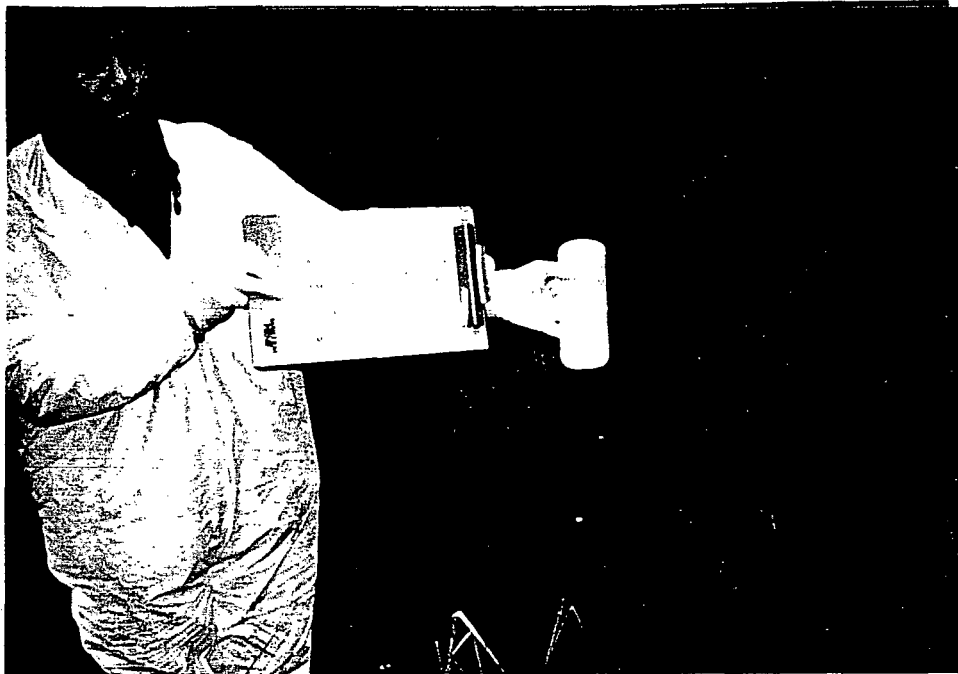
January 11, 1995

08:05

Photo of B. Pierre collecting sediment sample SED10.

Ref No 6, p 35 of 47

101746



3. January 11, 1995
Photo of J. Jang collecting surface water sample SW9.

08:02



4. January 11, 1995
Photo of J. Jang collecting sediment sample SED9.

08:26

Ref No 6, p. 36 of 4



5. January 11, 1995 08:46
Photo of J. Jang collecting duplicate surface water samples SW6/SW7.



6. January 11, 1995 08:52
Photo of B. Pierre collecting duplicate sediment samples SED6/SED7.

Ref. 37 of 4



7. January 11, 1995
Photo of J. Jang collecting surface water sample SW8.

09:46



8. January 11, 1995
Photo of J. Jang collecting surface water sample SW5.

09:59

Ref No 6, p. 33 of 4



9.

January 11, 1995
Photo of J. Jang collecting sediment sample SED5.

10:28



10.

January 11, 1995
Photo of J. Jang collecting surface water sample SW2.

10:54

Ref No. 8003-431



11.

January 11, 1995

11:18

Photo of B. Pierre collecting surface water sample SW3.



12.

January 11, 1995

11:27

Photo of B. Pierre collecting sediment sample SED3.

Ref No. 8-40647

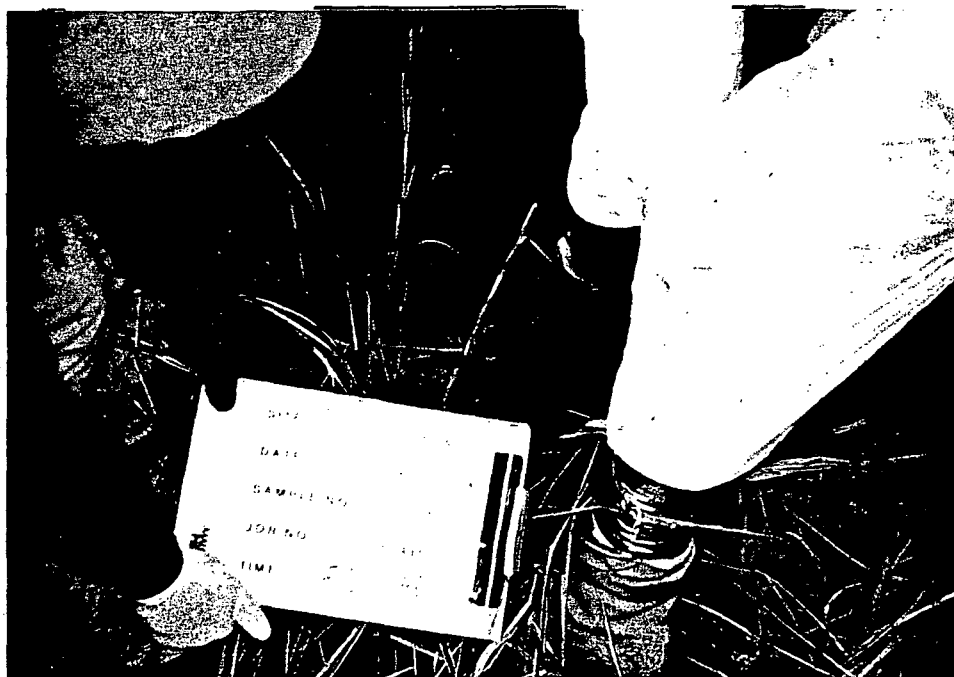


13.

January 11, 1995

11:27

Photo of J. Jang collecting surface water sample SW4.



14.

January 11, 1995

11:48

Photo of B. Pierre collecting sediment sample SED4.

Ref No 6, p 41 of 47



15.

January 11, 1995

13:30

Photo of J. Jang collecting surface water sample SW1.



16.

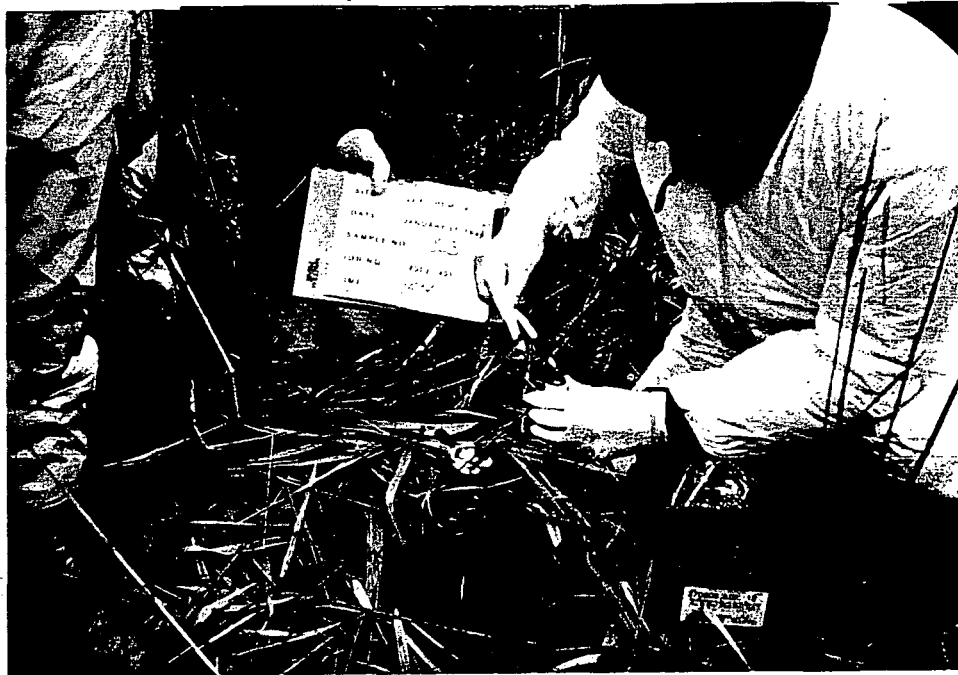
January 11, 1995

13:42

Photo of B. Pierre collecting sediment sample SED1.

Ref No 6, p. 42 of 41

101753



17. January 11, 1995
Photo of J. Jang collecting soil sample SL3.

14:04



18. January 11, 1995
Photo of B. Pierre collecting soil sample SL2.

14:27

Ref No 6, p. 43 of 47



19.

January 11, 1995

14:55

Photo of J. Jang collecting soil sample SL1.

R/Rob, 446 f 47

ATTACHMENT 2

101756

REFERENCES

1. U.S. Environmental Protection Agency (EPA) Superfund Program, Comprehensive Environmental Response Compensation Liability Information System (CERCLIS), List 8: Site/Event Listing, EPA Superfund Program, p. 280, March 15, 1993.
2. Four-mile Vicinity Map for LCP Chemicals, Inc. site, compiled from U.S. Geological Survey Topographical Maps, 7.5 minute series, "Arthur Kill, New York-New Jersey," 1966, photorevised 1981; "Elizabeth, New York - New Jersey," 1967, photorevised 1981; "Perth Amboy, New Jersey," 1966, photorevised 1966"; "Roselle, New Jersey," 1955, photorevised 1981.
3. Fifteen-mile Surface Water Pathway Map for LCP Chemicals site, compiled from National Wetland Inventory (NWI) Maps, "Arthur Kill, New Jersey-New York"; "Elizabeth, New Jersey-New York"; "Keyport, New Jersey"; "Perth Amboy, New Jersey"; "Roselle, New Jersey".
4. Project Note: To LCP Chemicals file, from David Kahlenberg, Malcolm Pirnie, Inc., Subject: Groundwater Apportionment, July 19, 1995.
5. Project Note: To LCP Chemicals file, from David Kahlenberg, Malcolm Pirnie, Inc., Subject: Surface Water Pathway, May 10, 1995.
6. Project Note: To LCP Chemicals file, from David Kahlenberg, Malcolm Pirnie, Inc., Subject: Wellhead Protection Areas, July 19, 1995.
7. Project Note: To LCP Chemicals file, from David Kahlenberg, Malcolm Pirnie, Inc., Subject: Four Mile Radius Populations, May 10, 1995.
8. Project Note: To LCP Chemicals file, from Jin Ho Jang, Malcolm Pirnie, Inc., Subject: Four Mile Wetland Acreage, December 21, 1994.
9. Hazard Ranking System, Final Rule 40, Code of Federal Regulations, Part 300, Federal Register Volume 55, No. 241 p. 51,601, December 14, 1990.
10. Supplemental Case Transfer Report, NJDEP, LCP Chemical site, July 26, 1991.
11. Evaluation and Site Inspection of LCP Chemicals-NJ, Inc., Linden, NJ, prepared for the EPA by Ertex Atlantic, Inc., Somerset, NJ, May 1982.
12. Waste Lagoon Groundwater Monitoring Report, LCP Chemicals, New Jersey, Inc., Linden, NJ, prepared by Geraghty & Miller, Inc., February 1982.
13. Site Inspection Report and Hazard Ranking System Model, LCP Chemicals, Linden, NJ, prepared by NUS Corporation, for the EPA, December, 31, 1984.
14. Closure and Post-Closure Plan for Brine Sludge Lagoon, LCP Chemicals-NJ, Inc., Linden, NJ., July 16, 1982.

Ref Doc # 46-47

REFERENCES (Continued)

15. Description of Current Conditions, RCRA Facility Investigation Task I, LCP Chemical - NJ, Inc., Linden, NJ, prepared by Eder Associates Consulting Engineers, P.C. on behalf of LCP Chemicals - NJ, Inc., a Division of the Hanlin Group, Inc. for the EPA, January 1992.
16. Sample Trip Report, LCP Chemical, EPA Case No. 23123, Site Inspection Sampling Event conducted on January 11, 1995.
17. U.S. EPA Contract Laboratory Program, IT Analytical, Case No. 23123, Inorganic Laboratory Analysis from Malcolm Pirnie, Inc. Site Inspection Sampling, Conducted on January 11, 1995.
18. Project Note: To LCP Chemical file, from David Kahlenberg, Malcolm Pirnie, Inc., Subject: Qualified Data, May 11, 1995.
19. Field Notebook, No. 748212, LCP Chemical, Site Inspection Sampling, Malcolm Pirnie, Inc., January 11, 1995.
20. Hazard Ranking System Guidance Manual, Office of Solid Waste and Emergency Response, USEPA, Publication No. 9345.1-07, November 1992.
21. Interoffice Correspondence: to David Kahlenberg, from Lisa Greco, Subject: LCP Wetland Delineation, May 19, 1995.
22. U.S. EPA Contract Laboratory Program, PACE New England (Resource Analytical), Case No. 23123, Organic/Semivolatile Organic/Pesticides/Polychlorinated Biphenyls Laboratory Analysis from Malcolm Pirnie, Inc. Site Inspection Sampling, Conducted on January 11, 1995.
23. Project Note: To LCP Chemical file, from David Kahlenberg, Malcolm Pirnie, Inc., Subject: Wetlands Actual Contamination, May 31, 1995.

Ref No. 6, p. 47 of 47

REFERENCE NO. 7

101759

SAMPLE TRIP REPORT

SITE NAME: LCP Chemical
PROJECT No.: 8003-431
CERCLIS ID No.: NJD079303020
SAMPLING DATE: January 11, 1995
EPA CASE No.: 23123

1. Site Location: South Wood Avenue, Linden, Union County, New Jersey - Refer to Figure 1
2. Sample Locations: Refer to Figure 2
3. Sample Descriptions: Refer to Table 1
4. Laboratories Receiving Samples:

<u>Sample Type</u>	<u>Name and Address of Laboratory</u>
Full TCL Organics	PACE New England (Resource Analytical) 1 Lafayette Road Hampton Falls, NH 03842
TAL Inorganics (excluding Cyanide)	IT Analytical 5103 Old William Penn Highway Export, PA 15632

5. Sample Dispatch Data:

A total of twelve (12) aqueous samples, eleven (11) soil/sediment samples and one (1) trip blank were shipped on January 11, 1995 by Malcolm Pirnie, Inc. personnel via Federal Express, in seven (7) coolers, under Airbill No. 3934274245 to PACE New England Laboratories for Full TCL Organics analyses.

A total of twelve (12) aqueous samples and eleven (11) soil/sediment samples were shipped on January 11, 1995 by Malcolm Pirnie, Inc. personnel, via Federal Express, in two (2) coolers, under Airbill No. 3934274234 to IT Analytical Laboratories for TAL Inorganics (excluding CN) analyses.

6. Sampling Personnel:

<u>Name</u>	<u>Organization</u>	<u>Duties on Site</u>
David Kahlenberg	Malcolm Pirnie, Inc.	Site Manager (SM)
Valerie Smith	Malcolm Pirnie, Inc.	Sample Management Officer (SMO)
Lisa Greco	Malcolm Pirnie, Inc.	Site Health & Safety Officer (SHSO)
Jin Ho Jang	Malcolm Pirnie, Inc.	Sampler
Bernard Pierre	Malcolm Pirnie, Inc.	Sampler

7. Weather Conditions:

12/20/94 Snow flurries in the AM, changing to sleet; temperature; high 35° F

Ref. No. 7, p. 1 of 16

101760

8. Additional Comments:

All samples will be analyzed for Target Compound List (TCL) organic and Target Analyte List (TAL) inorganic compounds, excluding cyanide.

All of the sampling equipment required for the sampling event was decontaminated in one procedure.

Although sediment samples SED2 and SED8 were planned to be taken in accordance with the sample plan, field conditions did not permit the collection of these samples, because there was no sediment present at the proposed sample locations.

Only one of two 80 ounce jars were sent for sample SW8 (BPP17). One bottle was accidentally broken in the field.

Surface water and sediment sample numbers 5-10 were all collected along the western bank of the South Branch Creek.

9. Report Prepared By:

David Kahlenberg *DSK*

Date: January 16, 1995

10. QA/QC Approved By:

Valerie Smith *VS*

Date: January 16, 1995

Ref. No. 7, p. 2 of 16

101761

TABLE 1
SAMPLE DESCRIPTIONS
LCP CHEMICAL
LINDEN, UNION COUNTY, NEW JERSEY
JANUARY 11, 1995

<u>Sample Number</u>	<u>CLP Organic Sample Number</u>	<u>CLP Inorganic Sample Number</u>	<u>Collection Time</u>	<u>Sample Type</u>	<u>Sample Location</u>
SW1	BPP10	MBKW54	1330	Aqueous	Surface water sample collected from a frozen/iced over ponded wetland area located 350 feet north of sample SW2, and east of the railroad tracks.
SW2	BPP11	MBKW55	1054	Aqueous	Surface water sample collected from the outfall of the drainage pipe from GAF Corporation.
SW3	BPP12	MBKW56	1118	Aqueous	Surface water sample collected from the South Branch Creek (SBC), immediately downstream of the outfall of the drainage pipe from LCP. Note: the LCP outfall was not flowing at the time of sample collection.
SW4	BPP13	MBKW57	1127	Aqueous	Surface water sample collected from the SBC, at an outfall pipe originating from the Elizabethtown Water Company.
SW5 ⁽¹⁾	BPP14	MBKW58	0959	Aqueous	Surface water sample collected from the SBC, immediately downslope of site monitoring well P-3, and 300 feet from site's northern probable point of entry (PPE), and samples SW2-4/SED3,4.
SW6	BPP15	MBKW59	0846	Aqueous	Surface water sample collected from the SBC, 75 feet north and upstream of the Northville Industries pipeline bridge (NIPB).
SW7 ⁽²⁾	BPP16	MBKW60	0846	Aqueous	Duplicate surface water sample of sample SW6.

(1) Sample location designated for the collection of MS/MSD or MS/MD sample.

(2) Sample location designated for the collection of field duplicate sample.

Ref. No. 7, p. 3 of 16

101762

TABLE 1
SAMPLE DESCRIPTIONS
LCP CHEMICAL
LINDEN, UNION COUNTY, NEW JERSEY
JANUARY 11, 1995

<u>Sample Number</u>	<u>CLP Organic Sample Number</u>	<u>CLP Inorganic Sample Number</u>	<u>Collection Time</u>	<u>Sample Type</u>	<u>Sample Location</u>
SW8	BPP17	MBKW61	0946	Aqueous	Surface water sample collected from the SBC, at the outfall of a stormwater pipe.
SW9	BPP18	MBKW62	0820	Aqueous	Surface water sample collected from the SBC, 20 feet north and upstream of the NIPB.
SW10	BPP19	MBKW63	0801	Aqueous	Surface water sample collected from the SBC, 50 feet prior to the confluence of the SBC with the Arthur Kill.
SED1	BPP20	MBKW64	1342	Sediment	Sediment sample located 22 feet at a bearing of 224° from sample SW1.
SED3	BPP22	MBKW66	1127	Sediment	Sediment sample collected from the same sample location as sample SW3.
SED4	BPP23	MBKW67	1148	Sediment	Sediment sample collected immediately downstream of sample SW4.
SED5 ⁽¹⁾	BPP24	MBKW68	1028	Sediment	Sediment sample collected from the same sample location as sample SW5.
SED6	BPP25	MBKW69	0852	Sediment	Sediment sample collected from the same sample location as sample SW6.
SED7 ⁽²⁾	BPP26	MBKW70	0852	Sediment	Duplicate sediment sample collected from the same sample location as sample SW7.

(1) Sample location designated for the collection of MS/MSD or MS/MD sample.

(2) Sample location designated for the collection of field duplicate sample.

Ref. No. 7, p. 4 of 16

TABLE 1
SAMPLE DESCRIPTIONS
LCP CHEMICAL
LINDEN, UNION COUNTY, NEW JERSEY
JANUARY 11, 1995

<u>Sample Number</u>	<u>CLP Organic Sample Number</u>	<u>CLP Inorganic Sample Number</u>	<u>Collection Time</u>	<u>Sample Type</u>	<u>Sample Location</u>
SED9	BPP28	MBKW72	0826	Sediment	Sediment sample collected from the same sample location as sample SW9.
SED10	BPP29	MBKW73	0805	Sediment	Sediment sample collected from the same sample location as sample SW10.
SL1	BPP30	MBKW74	1455	Soil	Background surface soil sample located 268 feet at a bearing of 224° to the site's access road and the site guard shack. Sample Depth: 0 - 6 inches.
SL2	BPP35	MBKW78	1427	Soil	Surface soil sample located 30 feet northeast of site monitoring well P-2. Sample Depth: 0 - 6 inches.
SL3	BPP36	MBKW79	1404	Soil	Surface soil sample located 12 feet northeast of site monitoring well P-1A. Sample Depth: 0 - 6 inches.
RIN1	BPP31	MBKW75	0745	Aqueous	Rinsate sample of a trowel associated with BNAE and Pesticide/PCB fractions of SW1, SW2, SW3, SW5, SW6, SW7, and SW8; as well as all soil and sediment samples collected.
RIN2	BPP32	MBKW76	0800	Aqueous	Rinsate sample of a bowl and associated with all soil and sediment samples collected.
TBLK1	BPP34	NA	0730	Aqueous	Trip blank associated with all aqueous samples collected.

(1) Sample location designated for the collection of MS/MSD or MS/MD sample.

(2) Sample location designated for the collection of field duplicate sample.

(3) NA = Not Applicable

Ref. No. 71P. 5 of 16

101764

Arthur Kill

SW/SED10

SW/SED9

THIS MAP IS LOCATED AT THE FOLLOWING LOCATION:
U.S. EPA, REGION 2, SUPERFUND RECORDS CENTER,
290 BROADWAY, 18TH FLOOR, NEW YORK, NY 10007

RCRA FACILITY INVESTIGATION

LCP CHEMICALS-NEW JERSEY, INC.
A DIVISION OF HANLIN GROUP, INC.

LINDEN, NEW JERSEY



eder associates consulting engineers
NEW YORK MICHIGAN WISCONSIN GEORGIA

PROJECT
RCRA FACILITY INVESTIGATION
LCP CHEMICALS-NEW JERSEY, INC.
A DIVISION OF HANLIN GROUP, INC.
LINDEN, NEW JERSEY

TITLE

FIGURE 2: SAMPLE LOCATION MAP
Note: Sample locations are not located to scale.
Map based upon a RCRA Facility Investigation
prepared by Eder Associates Consulting Engineers, P.C.



eder associates consulting engineers, p.c.

LOCUST VALLEY, NEW YORK • MADISON, WISCONSIN
ANN ARBOR, MICHIGAN • AUGUSTA, GEORGIA

DRAWN BY	MSA	SCALE	1" = 100'-0"
DESIGNED BY	KJP	PROJECT No.	625-3
APPROVED BY	SJO	DWG. No.	1
DATE	JANUARY, 1992		

625-3B
012492

101765

REFERENCE NO. 8

101766



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code 8003-431	Account Code -	2. Region No. 2	Sampling Co. mpti	4. Date Shipped 11/95	Carrier Fed Ex	6. Preservative (Enter in Column D) 1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2CR2O7 6. Ice only 7. Other (Specify) N. Not preserved	7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)	
Regional Information		3. Sampler (Name) V. Smith		Airbill Number 3934274234				
Non-Superfund Program		Sampler Signature V. Smith		5. Ship To IT Analytical				
Site Name LCP Chemical		3. Type of Activity		ATTN: D. Dunlap				
City, State Linden NJ		Site Spill ID ZZ						
		Remedial Removal SF <input type="checkbox"/> Lead <input type="checkbox"/> Pre-Remedial <input type="checkbox"/> RIFS <input type="checkbox"/> CLEM <input type="checkbox"/> PRP <input type="checkbox"/> PA <input type="checkbox"/> RD <input type="checkbox"/> REMA <input type="checkbox"/> ST <input type="checkbox"/> SS <input type="checkbox"/> RA <input type="checkbox"/> REM <input type="checkbox"/> FED <input type="checkbox"/> LSI <input type="checkbox"/> O&M <input type="checkbox"/> OIL <input type="checkbox"/> NPLD <input type="checkbox"/> UST <input type="checkbox"/>						

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E - RAS Analysis								F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. - = Not a QC Sample						
					Total Metals	Low Conc. only	High only	Cyanide	Nitrate/Nitrite	Fluoride	pH	Conductivity												
mbkw54	1	L	G	2	X								05254	Sw1	11/95 1330	B	BPP 10							
55					X								05259	Sw2	1059	B	11							
56					X								05264	Sw3	118	B	12							
57					X								05269	Sw4	1127	B	13							
58					X								05282-83	Sw5	0959	B	14	S						
59					X								05288	Sw6	0846	B	15	FD						
60					X								05293	Sw7	0846	B	16	FD P15/K6						
61					X								05298	Sw8	0946	B	17							
62					X								05303	Sw9	0820	B	18							
63					X								05308	Sw10	0801	B	19							
Shipment for Case complete? (Y/N)					Page 1 of 3					Sample used for a spike and/or duplicate mbkw58					Additional Sampler Signatures					Chain of Custody Seal Number				

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) V. Smith	Date / Time 11/95 Sp	Received by: (Signature) Fed Ex	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code 8003-431	Account Code -	2. Region No. 2	Sampling Co. MPI	4. Date Shipped 11/19/95	Carrier Fed Ex	6. Preservative (Enter in Column D) 1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2Cr2O7 6. Ice only 7. Other (Specify) N. Not preserved	7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)
Regional Information		3. Sampler (Name) V. Smith		Airbill Number 3934274234			
Non-Superfund Program		Sampler Signature 		5. Ship To IT Analytical			
Site Name LCP Chemical		3. Type of Activity Remedial Removal SF <input type="checkbox"/> Lead <input type="checkbox"/> Pre-Remedial <input type="checkbox"/> RIFS <input type="checkbox"/> CLEM PRP <input type="checkbox"/> PA <input type="checkbox"/> RD <input type="checkbox"/> REMA ST <input type="checkbox"/> SS <input checked="" type="checkbox"/> RA <input type="checkbox"/> REM FED <input type="checkbox"/> LSI <input type="checkbox"/> O&M <input type="checkbox"/> OIL NPLD <input type="checkbox"/> UST <input type="checkbox"/>		ATTN: D. Dunlap			
City, State Linden, NJ		Site Spill ID 22					

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E - RAS Analysis						F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample
					Total Metals	Cyanide	Low Conc. only	High only	Conductivity							
MBKW68	5	L	G	6	X						05329	SED1	11/19/95 1342	KS	BPP20	
65					X						05333	SED2			21	
66					X						05337	SED3	11/27		22	
67					X						05341	SED4	11/48		23	
68					X						05345	SED5	10/28		24	S
69					X						05349	SED6	08/52		25	FD
70					X						05353	SED7	08/52		26	FD FD 31/1/95
71					X						05357	SED8			27	
72					X						05361	SED9	08/26		28	
73					X						05365	SED10	08/05		29	

Shipment for Case complete? (Y/N) ☒ Y

Page 1 of 3

Sample used for a spike and/or duplicate MBKW68

Additional Sampler Signatures

Chain of Custody Seal Number

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) 	Date / Time 11/19/95 1P	Received by: (Signature) Fed Ex	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Inorganic Traffic Report & Chain of Custody Record

(For Inorganic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code 8003431		Account Code		2. Region No. 2		Sampling Co. MPI		4. Date Shipped 11/19/95		Carrier FedEx		6. Preservative (Enter in Column D) 1. HCl 2. HNO3 3. NaOH 4. H2SO4 5. K2Cr2O7 6. Ice only 7. Other (Specify) N. Not preserved		7. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Flinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)									
Regional Information				3. Sampler (Name) V. Smith				Airbill Number 3934274234															
Non-Superfund Program				3. Sampler Signature [Signature]				5. Ship To IT Analytical															
Site Name LCP Chemical				3. Type of Activity Remedial Removal SF Lead Pre-Remedial RIFS CLEM PRP PA RD REM ST SS RA O&M OIL FED LSI NPLD UST				ATTN: D. Dunlap															
City, State Linden NJ		Site Spill ID ZZ		D. Preservative from Box 6		E. RAS Analysis Metals: Total Dissolved Cyanide Low Conc. only: Nitrate Nitrite Fluoride High only: pH Conductivity		F. Regional Specific Tracking Number or Tag Numbers 6/14/95		G. Station Location Number SL1		H. Mo/Day/Year/Time Sample Collection 11/19/95 1455		I. Sampler Initials B		J. Corresp. CLP Org. Samp. No. BPP30		K. Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample					
CLP Sample Numbers (from labels)		A. Enter # from Box 7		B. Conc. Low Med High		C. Sample Type: Comp/Grab		D. Preservative from Box 6		E. RAS Analysis		F. Regional Specific Tracking Number or Tag Numbers		G. Station Location Number		H. Mo/Day/Year/Time Sample Collection		I. Sampler Initials		J. Corresp. CLP Org. Samp. No.		K. Enter Appropriate Qualifier for Designated Field QC	
MBKW74		5		L		G		6		X		05312		SL1		11/19/95 1455		B		BPP30			
75		4		L		G		2		X		05313		RIN1		11/19/95 0745		B		31		B	
76		4		L		G		2		X		05318		RIN2		11/19/95 0800		B		32		B	
77		4		L		G		2		X		05323		RIN3		11/19/95 0800		B		33		B	
MBKW78		5		L		G		2		Y		05373		SL2		1427		B		BPP35			
79		4		L		G		2		V		05377		SL3		1404		B		36			
Shipment for Case complete? (Y/N)		Page 1 of 3		Sample used for a spike and/or duplicate		Additional Sampler Signatures		Chain of Custody Seal Number															

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) [Signature]	Date / Time 11/19/95 5P	Received by: (Signature) FedEx	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code 8003431	Account Code	2. Region No. 3	Sampling Co. MPI	4. Date Shipped 11/1/95	Carrier Fed Ex
Regional Information		3. Sampler (Name) V. Smith		Airbill Number 3934274245	
Non-Superfund Program		Sampler Signature 		5. Ship To Pace New England	
Site Name LCP Chemical		3. Type of Activity		ATTN: S. Rhode	
City, State Linden NJ		Site Spill ID ZZ			
		SF <input type="checkbox"/> PA <input type="checkbox"/> ST <input type="checkbox"/> FED <input type="checkbox"/>			
		Remedial <input type="checkbox"/> Pre-Remedial <input type="checkbox"/> RIFS <input type="checkbox"/> RD <input type="checkbox"/> RA <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/>			
		CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST <input type="checkbox"/>			

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample
					VOA	BNA	Pest/PCB	High only ARO/TOX						
BPP20	5	L	G	6	X				05326-27	SED1	11/1/95 1342	B	MAKWB4	
21						X	X		05328					
22						X	X		05330-31	SED2				
23						X	X		05332					
24						X	X		05334-35	SED3	11/27	B	66	
						X	X		05336					
						X	X		05338-39	SED4	11/48	B	67	
						X	X		05340					
						X	X		05342-43	SED5	1028	B	68	S
						X	X		05344					S

Shipment for Case complete? (Y/N) ☒ Y

Page 1 of 6

Sample used for a spike and/or duplicate **BPP24**

Additional Sampler Signatures

Chain of Custody Seal Number

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) 	Date / Time 11/1/95 SP	Received by: (Signature) Fed Ex	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

EPA Form 9110-2 (Rev. 5-91) Replaces EPA Form (2075-7), previous edition which may be used

DISTRIBUTION:

Blue - Office Copy; Pink - SMO Copy; White - Lab Copy for Return to Region; Yellow - Lab

Split Samples ☐ Accepted (Signature)

☐ Declined

101770

1-9



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 816 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code
8003431

Account Code

2. Region No. Sampling Co.

2

MPI

4. Date Shipped Carrier

11/19/95

FedEx

Regional Information

3. Sampler (Name)

V. Smith

Airbill Number

3934274245

Non-Superfund Program

5. Ship To

Face New England

ATTN: S. Rhode

Site Name

HCP Chemical

6. Preservative (Enter in Column D)

City, State

Linden, NJ

Site Spill ID

ZZ

7. Sample Description (Enter in Column A)

1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Other (Specify)
6. Ice only
N. Not preserved

1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample
DP25	5	L	G	6	VOA	BNA	Pest/PCB	High only ARO/TOX	05346-47	SED6	11/19/95 0852	B	MOXW6	FD
↓	↓	↓	↓	↓	X	X	X		05348	↓	↓	↓	↓	↓
26	↓	↓	↓	↓	X				05350-51	SED7	0852	↓	70	FD
↓	↓	↓	↓	↓		X	X		05352	↓	↓	↓	↓	↓
27	↓	↓	↓	↓	X				05354-55	SED8	↓	↓	↓	↓
↓	↓	↓	↓	↓		X	X		05356	↓	↓	↓	↓	↓
28	↓	↓	↓	↓	X				05358-59	SED9	0826	↓	72	↓
↓	↓	↓	↓	↓		X	X		05360	↓	↓	↓	↓	↓
29	↓	↓	↓	↓	X				05362-63	SED10	0805	↓	73	↓
↓	↓	↓	↓	↓		X	X		05364	↓	↓	↓	↓	↓

Shipment for Case complete? (Y/N)

Page 1 of

Sample used for a spike and/or duplicate

Additional Sampler Signatures

Chain of Custody Seal Number

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
V. Smith	11/19/95 5P	FedEx			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)

☐ Declined

Ref. No. 7, p. 12 of 16



Organic Traffic Report & Chain of Custody Record


(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No. 23123

[illegible]

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) 	Date / Time 11/11/95 5p	Received by: (Signature) FedEx	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

EPA Form 9110-2 (Rev. 5-81) Replaces EPA Form (2075-7), previous edition which may be used
DISTRIBUTION:

Split Samples ☐ Accepted (Signature)
☐ Declined

Ref.No. 71 P.13 of 16

101772

1.00



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code 8003431	Account Code	2. Region No. 2	Sampling Co. MPI	4. Date Shipped 11/15/95	Carrier Fed Ex
Regional Information		3. Sampler (Name) V. Smith		Albill Number 3934274245	
Non-Superfund Program		Sampler Signature 		5. Ship To Pace New England	
Site Name HCP Chemical		3. Type of Activity		ATTN: S. Rhode	
City, State Linden, NJ		Site Spill ID 22			
		SF <input type="checkbox"/> PRP <input type="checkbox"/> ST <input type="checkbox"/> FED <input type="checkbox"/>			
		Remedial <input type="checkbox"/> Pre-Remedial <input type="checkbox"/> PA <input type="checkbox"/> SS <input checked="" type="checkbox"/> LSI <input type="checkbox"/>			
		Removal <input type="checkbox"/> RIFS <input type="checkbox"/> RD <input type="checkbox"/> RA <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/>			
		CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST <input type="checkbox"/>			

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform Eval. -- = Not a QC Sample
					VOA	BNA	Pes/PCB	High only ARO/TOX						
BPP 30	5	L	G	6	X				05366-67	SL1	11/15/95	X	MBKW74	
↓	↓	↓	↓	6		X	X		05368-69	SL1	11/15/95	↓	↓	
31	4				X				05309-10	RIN1	11/15/95	0745	↓	B
↓	↓	↓	↓	6		X	X		05311-12	↓	↓	↓	↓	
32					X				05314-15	RIN2	11/15/95	0200	76	B
↓	↓	↓	↓	6		X	X		05316-17	↓	↓	↓	↓	
33					X				05319-20	RIN3	↓	↓	↓	B
↓	↓	↓	↓	6		X	X		05321-22	↓	↓	↓	↓	
34					X				05324-25	IBLK1	11/15/95	0730	NA	B

Shipment for Case complete? (Y/N)	Page 1 of 1	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
-----------------------------------	-------------	--	-------------------------------	------------------------------

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) 	Date / Time 11/15/95	Received by: (Signature) FedEx	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none

Split Samples ☐ Accepted (Signature)

☐ Declined

Ref. No. 7, P. 14 of 16

101773



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

23123

1. Project Code 2003B1	Account Code	2. Region No. 2	Sampling Co. MPI
Regional Information		3. Type of Activity SF <input type="checkbox"/> PA <input type="checkbox"/> ST <input type="checkbox"/> FED <input type="checkbox"/> Pre-Remedial <input type="checkbox"/> Remedial <input type="checkbox"/> Removal <input type="checkbox"/> RIFS <input type="checkbox"/> RD <input type="checkbox"/> RA <input type="checkbox"/> O&M <input type="checkbox"/> NPLD <input type="checkbox"/> CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST <input type="checkbox"/>	
Non-Superfund Program		4. Date Shipped 11/19/95	
Site Name LCP Chemical		Carrier FedEx	
City, State Linden, NJ		Airbill Number 3934274245	
Site Spill ID EE		5. Ship To Pace New England	
		ATTN: S. Rhode	

6. Preservative
(Enter in Column D)

1. HCl
2. HNO₃
3. NaHSO₄
4. H₂SO₄
5. Other (Specify)
6. Ice only
- N. Not preserved

7. Sample Description
(Enter in Column A)

1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample
					VOA	BNA	Pest/PCB	High only ARO/TOX						
BPP10	1	L	G	1	X				05250-51	SW1	11/19/95 1330	J	MDKWEH	
↓	↓	↓	↓	6	X	X	X		05252-53	↓	↓	↓	↓	
11	↓	↓	↓	1	X				05255-56	SW2	1051	↓	55	
↓	↓	↓	↓	6		X	X		05257-58	↓	↓	↓	↓	
12	↓	↓	↓	1	X				05260-61	SW3	1118	↓	56	
↓	↓	↓	↓	6		X	X		05262-63	↓	↓	↓	↓	
13	↓	↓	↓	1	X				05265-66	SW4	1127	↓	57	
↓	↓	↓	↓	6		X	X		05267-68	↓	↓	↓	↓	
14	↓	↓	↓	1	X				05270-75	SW5	0959	↓	58	S
↓	↓	↓	↓	6		X	X		05276-81	↓	↓	↓	↓	S
Shipment for Case complete? (Y/N)		Page 1 of 6		Sample used for a spike and/or duplicate BPP14					Additional Sampler Signatures			Chain of Custody Seal Number		

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature) [Signature]	Date / Time 11/19/95 5p	Received by: (Signature) FedEx	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none



United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record

(For Organic CLP Analysis)

SAS No.
(if applicable)

Case No.

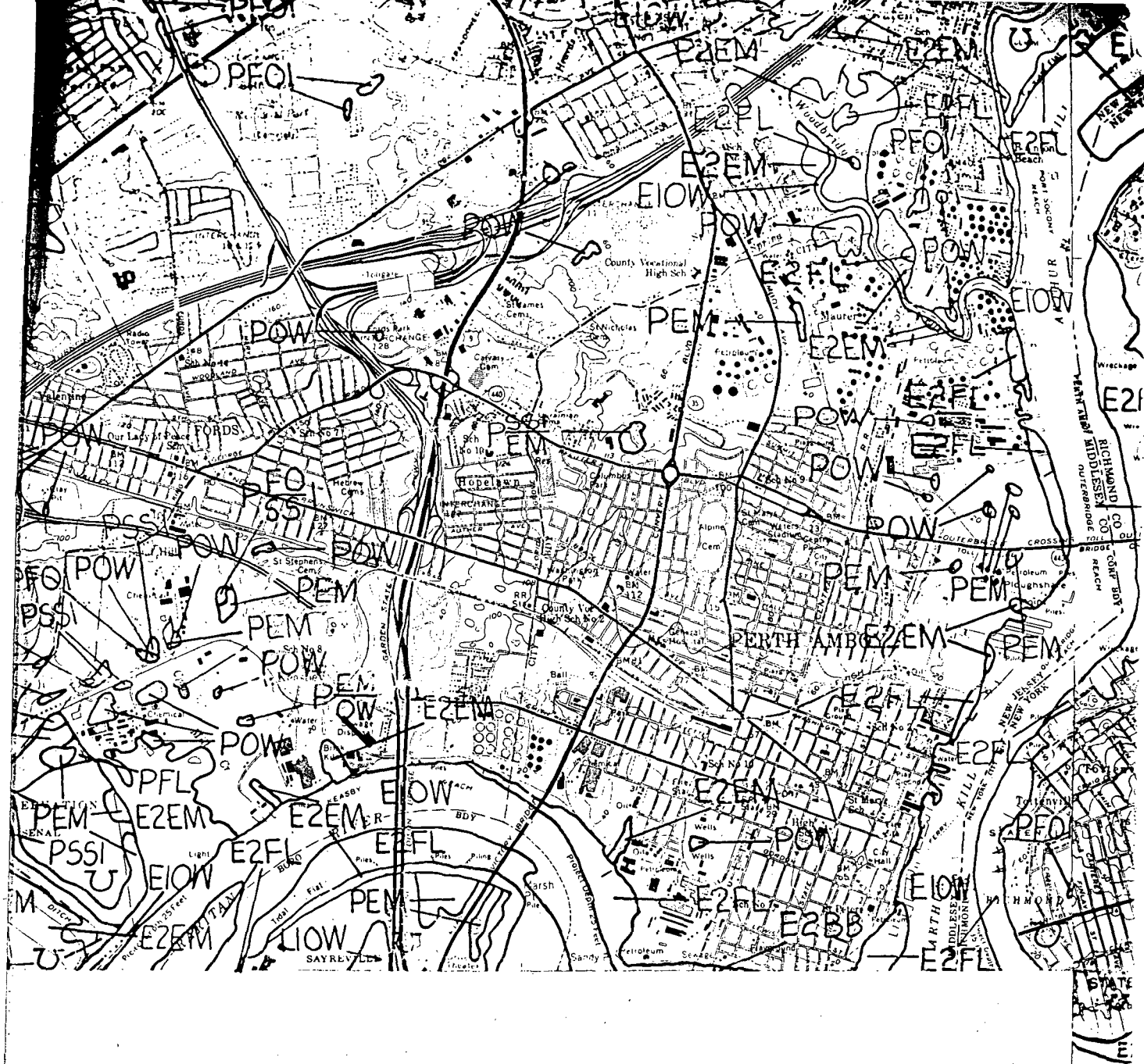
23123

1. Project Code 8003431	Account Code	2. Region No. 2	Sampling Co. MPI	4. Date Shipped 11/95	Carrier FedEx
Regional Information		3. Sampler (Name) V. Smith		Airbill Number 3934274245	
Non-Superfund Program		Sampler Signature <i>[Signature]</i>		5. Ship To Pace New England	
Site Name LCP Chemical		3. Type of Activity		6. Preservative (Enter in Column D)	
City, State Linden NJ		Site Spill ID 22		7. Sample Description (Enter in Column A)	
		SF <input type="checkbox"/> PA <input type="checkbox"/> ST <input type="checkbox"/> FED <input type="checkbox"/> Lead <input type="checkbox"/> Pre-Remedial <input type="checkbox"/> RIFS <input type="checkbox"/> RD <input type="checkbox"/> RA <input type="checkbox"/> O&M <input checked="" type="checkbox"/> NPLD <input type="checkbox"/> Removal <input type="checkbox"/> CLEM <input type="checkbox"/> REMA <input type="checkbox"/> REM <input type="checkbox"/> OIL <input type="checkbox"/> UST <input type="checkbox"/>		1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Other (Specify) 6. Ice only N. Not preserved	
		ATTN: S. Rhode		1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)	

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/ Grab	D Preservative from Box 6	E RAS Analysis				F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC B = Blank S = Spike D = Duplicate PE = Perform. Eval. -- = Not a QC Sample
					VOA	BNA	Pest/PCB	High only ARO/TOX						
BPP 15	1	L	G	1	X				05284-85	SW6	11/95 0846	B	60	FD
16				6	X	X			05286-87			B		
17				6	X	X			05289-90	SW7	0846	B	61	FD
18				6	X	X			05291-92			B		
19				6	X	X			05294-95	SW8	0946	B	62	
20				6	X	X			05296-97	SW9	0820	B	63	
21				6	X	X			05299-300			B		
22				6	X	X			05301-02	SW10	0801	B		
23				6	X	X			05304-05			B		
24				6	X	X			05306-07			B		

Shipment for Case complete? (Y/N) <input checked="" type="checkbox"/>	Page 1 of 6	Sample used for a spike and/or duplicate	Additional Sampler Signatures	Chain of Custody Seal Number
---	-------------	--	-------------------------------	------------------------------

Note: BPP only 1 bottle sent for BNAE's CHAIN OF CUSTODY RECORD me broke in the field					
Relinquished by: (Signature) <i>[Signature]</i>	Date / Time 11/95	Received by: (Signature) FedEx	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	Is custody seal intact? Y/N/none



TITLE:

FIFTEEN-MILE SURFACE WATER PATHWAY MAP

SITE NAME:

LCP CHEMICAL
LINDEN, UNION COUNTY, NEW JERSEY

DATE: 12/16/94

SCALE: 1" = 2000'

REPORT NUMBER: 8003-431

USGS TOPO NAME:

ARTHUR KILL, NEW YORK – NEW JERSEY

THIS MAP IS LOCATED AT THE FOLLOWING LOCATION:
U.S. EPA, REGION 2, SUPERFUND RECORDS CENTER,
290 BROADWAY, 18TH FLOOR, NEW YORK, NY 10007

101776